Microsoft® Office

Excel 2007

Student Edition

Complete

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Table of Contents

The Fundamentals **10**
Starting Excel 2007 11
What's New in Excel 2007 12
Understanding the Excel Program Screen 13
Understanding the Ribbon 14
Using the Office Button and Quick Access Toolbar 15
Using Keyboard Commands 16
Using Contextual Menus and the Mini Toolbar 17
Using Help 18
Exiting Excel 2007 20

Worksheet Basics **21**
Creating a New Workbook 22
Opening a Workbook 23
Navigating a Worksheet 24
Entering Labels 25
Entering Values 26
Selecting a Cell Range 27
Overview of Formulas and Using AutoSum 28
Entering Formulas 29
Using AutoFill 31
Understanding Absolute and Relative Cell References 32
Using Undo, Redo and Repeat 33
Saving a Workbook 35
Previewing and Printing a Worksheet 37
Closing a Workbook 38

Editing a Worksheet **39**
Editing Cell Contents 40
Cutting, Copying, and Pasting Cells 41
Moving and Copying Cells Using the Mouse 43
Using the Office Clipboard 44
Using the Paste Special Command 45
Checking Your Spelling 46
Inserting Cells, Rows, and Columns 48
Deleting Cells, Rows, and Columns 49
Using Find and Replace 50
Using Cell Comments 52
Tracking Changes 54

Formatting a Worksheet **55**
Formatting Labels 56
Formatting Values 57
Adjusting Row Height and Column Width 58
Working with Cell Alignment 59
Adding Cell Borders, Background Colors and Patterns 60
Using the Format Painter 62
Using Cell Styles 63
Using Document Themes 65
Applying Conditional Formatting 67
Creating and Managing Conditional Formatting Rules 69
Finding and Replacing Formatting 71

Creating and Working with Charts **72**
Creating a Chart 73
Resizing and Moving a Chart 75

Changing Chart Type 76
Applying Built-in Chart Layouts and Styles 77
Working with Chart Labels 78
Working with Chart Axes 80
Working with Chart Backgrounds 81
Working with Chart Analysis Commands 82
Formatting Chart Elements 83
Changing a Chart's Source Data 85
Using Chart Templates 86

Managing Workbooks 87
Viewing a Workbook 88
Working with the Workbook Window 90
Splitting and Freezing a Workbook Window 91
Selecting Worksheets in a Workbook 93
Inserting and Deleting Worksheets 94
Renaming, Moving and Copying Worksheets 95
Working with Multiple Workbooks 97
Hiding Rows, Columns, Worksheets and Windows 98
Protecting a Workbook 100
Protecting Worksheets and Worksheet Elements 102
Sharing a Workbook 104
Creating a Template 106

Working with Page Layout and Printing 107
Creating Headers and Footers 108
Using Page Breaks 110
Adjusting Margins and Orientation 112
Adjusting Size and Scale 113
Adding Print Titles, Gridlines and Headings 114
Advanced Printing Options 116

More Functions and Formulas 118
Formulas with Multiple Operators 119
Inserting and Editing a Function 120
AutoCalculate and Manual Calculation 122
Defining Names 124
Using and Managing Defined Names 126
Displaying and Tracing Formulas 128
Understanding Formula Errors 130

Working with Data Ranges 132
Sorting by One Column 133
Sorting by Colors or Icons 135
Sorting by Multiple Columns 137
Sorting by a Custom List 138
Filtering Data 140
Creating a Custom AutoFilter 141
Using an Advanced Filter 142

Working with Tables 144
Creating a Table 145
Working with Table Size 147
Working with the Total Row 149
Working with Table Data 151
Summarizing a Table with a PivotTable 153
Using the Data Form 154
Using Table Styles 155

Using Table Style Options....156
Creating and Deleting Custom Table Styles....157
Convert or Delete a Table....159

Working with PivotTables....160
Creating a PivotTable....161
Specifying PivotTable Data....162
Changing a PivotTable's Calculation....163
Filtering and Sorting a PivotTable....164
Working with PivotTable Layout....165
Grouping PivotTable Items....167
Updating a PivotTable....169
Formatting a PivotTable....170
Creating a PivotChart....171

Analyzing and Organizing Data....172
Creating Scenarios....173
Creating a Scenario Report....175
Working with Data Tables....176
Using Goal Seek....178
Using Solver....179
Using Data Validation....181
Using Text to Columns....183
Removing Duplicates....185
Grouping and Outlining Data....186
Using Subtotals....188
Consolidating Data by Position or Category....190
Consolidating Data Using Formulas....192

Working with the Web and External Data....193
Inserting a Hyperlink....194
Creating a Web Page from a Workbook....195
Importing Data from an Access Database or Text File....196
Importing Data from the Web and Other Sources....198
Working with Existing Data Connections....200

Working with Macros....202
Recording a Macro....203
Playing and Deleting a Macro....205
Adding a Macro to the Quick Access Toolbar....206
Editing a Macro's Visual Basic Code....207
Inserting Copied Code in a Macro....208
Declaring Variables and Adding Remarks to VBA Code....210
Prompting for User Input....212
Using the If…Then…Else Statement....213

Working with Objects....214
Inserting Clip Art....215
Inserting Pictures and Graphics Files....216
Formatting Pictures and Graphics....217
Inserting Shapes....219
Formatting Shapes....221
Resize, Move, Copy and Delete Objects....223
Applying Special Effects to Objects....224
Grouping Objects....225
Aligning Objects....226
Flipping and Rotating Objects....227
Layering Objects....228

Inserting SmartArt 229
Working with SmartArt Elements 230
Formatting SmartArt 232
Using WordArt 234
Inserting an Embedded Object 235
Inserting Symbols 236

Advanced Topics 237
Customizing the Quick Access Toolbar 238
Using and Customizing AutoCorrect 240
Changing Excel's Default Options 242
Recovering Your Documents 243
Using Microsoft Office Diagnostics 245
Viewing Document Properties and Finding a File 246
Saving a Document as PDF or XPS 247
Adding a Digital Signature to a Workbook 249
Preparing Documents for Publishing and Distribution 250
Publishing a Workbook to a Document Workspace 251
Creating a Custom AutoFill List 252
Creating a Custom Number Format 253

Appendix of Common Functions 254
Using Logical Functions (IF) 255
Using Financial Functions (PMT) 256
Using Database Functions (DSUM) 257
Using Lookup Functions (VLOOKUP) 258
Financial Functions 259
Date & Time Functions 260
Math & Trig Functions 262
Statistical Functions 264
Lookup & Reference Functions 265
Database Functions 266
Text Functions 267
Logical Functions 268

Microsoft Office Excel 2007 Review 269

1

The Fundamentals

Starting Excel 2007 11
Windows XP 11
Windows Vista 11

What's New in Excel 2007 12

Understanding the Excel Program Screen 13

Understanding the Ribbon 14
Tabs 14
Groups 14
Buttons 14

Using the Office Button and Quick Access Toolbar 15

Using Keyboard Commands 16
Keystroke shortcuts 16
Key Tips 16

Using Contextual Menus and the Mini Toolbar 17

Using Help 18
Search for help 18
Browse for help 18
Choose the Help source 18

Exiting Excel 2007 20

Microsoft Excel is a powerful spreadsheet program that allows you to make quick and accurate numerical calculations and helps you to make your data look sharp and professional. The uses for Excel are limitless: businesses use Excel for creating financial reports, scientists use Excel for statistical analysis, and families use Excel to help manage their investment portfolios.

For 2007, Excel has undergone a major redesign. If you've used Excel before, you'll still be familiar with much of the program's functionality, but you'll notice a completely new user interface and many new features that have been added to make using Excel more efficient.

This chapter is an introduction to working with Excel. You'll learn about the main parts of the program screen, how to give commands, use help, and about new features in Excel 2007.

Starting Excel 2007

In order to use a program, you must start—or launch—it first.

Windows XP

1. Click the Windows **Start** button.

   The Start menu appears.

2. Point to **All Programs**.

   A menu appears. The programs and menus listed here will depend on the programs installed on your computer.

3. Point to **Microsoft Office**.

4. Select **Microsoft Office Excel 2007**.

   The Excel program screen appears.

Windows Vista

1. Click the Windows **Start** button.

   The Start menu appears.

2. Click **All Programs**.

   The left pane of the Start menu displays the programs and menus installed on your computer.

3. Click **Microsoft Office**.

4. Select **Microsoft Office Excel 2007**.

   The Excel 2007 program screen appears.

   Trap: Depending on how your computer is set up, the procedure for starting Excel 2007 might be a little different from the one described here.

Tips

✓ If you use Excel 2007 frequently, you might consider pinning it to the Start menu. To do this, right-click **Microsoft Office Excel 2007** in the All Programs menu and select **Pin to Start Menu**.

Exercise

- **Exercise File:** None required.
- **Exercise:** Review the new features in Microsoft Office Excel 2007.

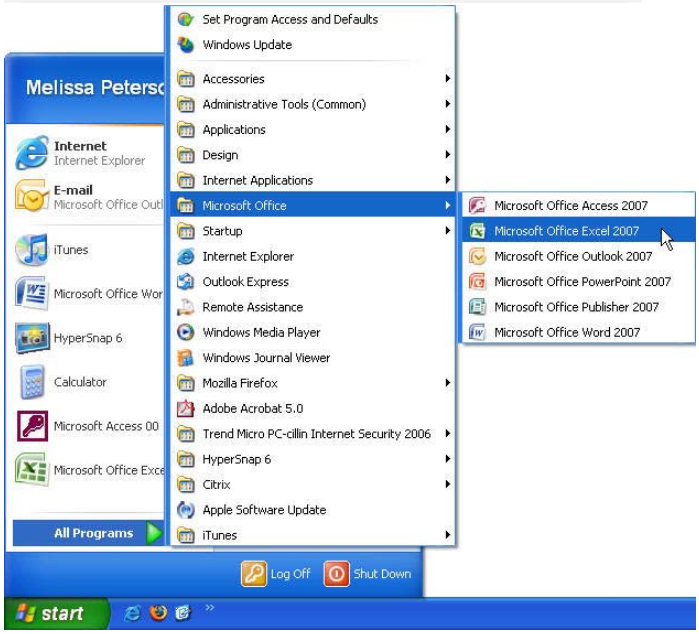


Figure 1-1: The All Programs menu in Windows XP.

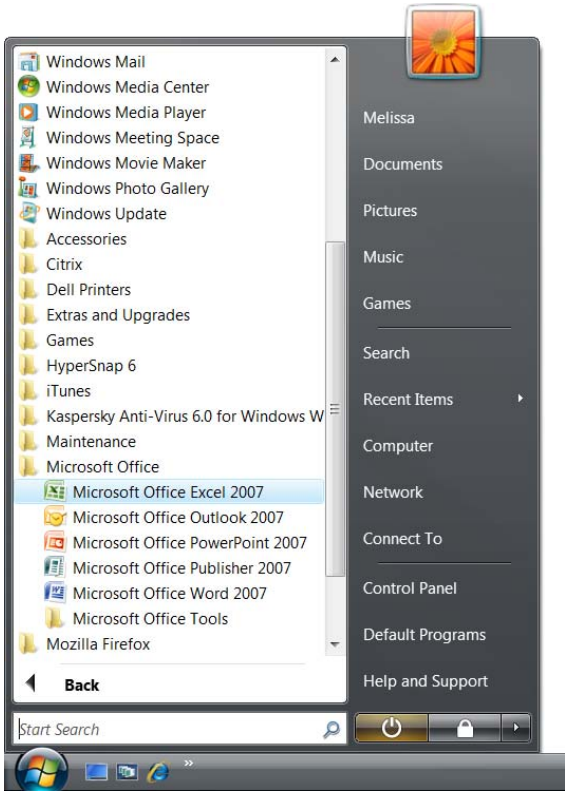


Figure 1-2: The All Programs menu in Windows Vista.

What's New in Excel 2007

Excel 2007 is very different from previous versions. The table below gives you an overview of what to expect.

Exercise

- **Exercise File:** None required.
- **Exercise:** Review the new features in Microsoft Office Excel 2007.

Table 1-1: What's New in Excel 2007

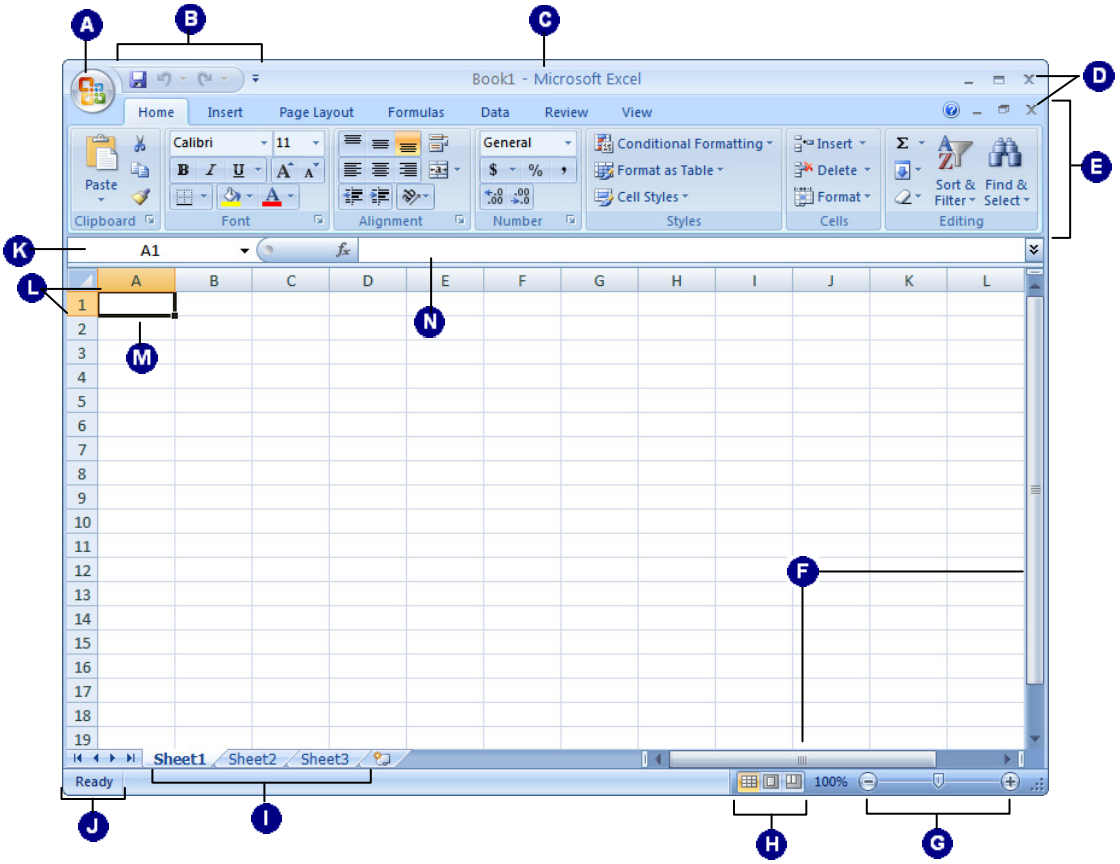
New user interface	The new results-oriented user interface (UI) is the most noticeable change in Excel 2007. Traditional menus and toolbars have been replaced by the Ribbon, a single mechanism that makes all the commands needed to perform a task readily available.
Live Preview	Allows you to preview how a formatting change will look before applying it. Simply point to the selection on the Ribbon or Mini Toolbar and Excel 2007 shows you a preview of what your worksheet would look like if the selected changes were applied.
XML compatibility	The new Excel XML format (xlsx) is much smaller in file size and makes it easier to recover damaged or corrupted files. Files based on XML have the potential to be more robust and integrated with information systems and external data.
Improved styles and themes	Predefined styles and themes let you change the overall look and feel of a worksheet in just a few clicks. With Office themes, you can apply predefined formatting to workbooks and then share them with Word and PowerPoint to give your Office documents a unified look. You can even create your own corporate theme. Styles can be used to format specific items in Excel, such as tables and charts.
SmartArt	The new SmartArt graphics feature offers new diagram types and more layout options, and lets you convert text such as a bulleted list into a diagram.
Save as PDF	Now you can install an Excel add-in that allows you to save a workbook as a PDF without using third-party software. PDF format allows you to share your worksheet with users on any platform.
Document Inspector	Removes comments, tracked changes, metadata (document history such as the author and editors) and other information that you don't want to appear in the finished worksheet.
Digital Signature	Adding a digital signature to a workbook prevents inadvertent changes, ensuring that your content cannot be altered.
Better sharing capabilities	Microsoft Office SharePoint Server 2007 makes it easier to share and manage worksheets from within Excel.
Better conditional formatting	Conditional formatting allows you to analyze Excel data with just a few clicks. You can apply gradient colors, data bars, and icons to cells to visually represent relationships between your data.
Easier formula writing	An expandable formula bar and Function AutoComplete are among several features that make formula writing easier in Excel 2007.
Enhanced sorting and filtering	Now you can sort data by color and by up to 64 levels. You can also filter by color or date, display more than 1000 items in the AutoFilter drop-down list, filter by multiple items, and filter PivotTable data.
Improved tables (formerly Excel lists)	Among the improvements to tables: table header rows can be turned on or off; calculated columns have been added so you only have to enter a formula once; AutoFilter is turned on by default; and structured references allow you to use table column header names in formulas in place of cell references.
Better charts	Visual chart element pickers allow you to quickly edit chart elements such as titles and legends, OfficeArt allows you to format shapes with modern-looking 3-D effects, and clearer lines and charts make charts easier to read. In addition, sharing charts with other Office programs is easier than ever, because Word and PowerPoint now share Excel's chart features.
New PivotTable interface	With the new PivotTable user interface, dragging data to drop zones has been replaced by clicking the fields you want to see. You can now undo PivotTable actions, expand or collapse parts of the PivotTable with plus and minus drill-down indicators, and sort and filter data using simple buttons.
Easier connection to external data	Quicklaunch allows you to select from a list of data sources that your administrator has made available, instead of having to know the server or database names, and a connection manager allows you to view all the connections in a workbook.
New Page Layout view	With a new Page Layout view, you can see how your worksheet will look in a printed format while you work.

Understanding the Excel Program Screen

The Excel 2007 program screen may seem confusing and overwhelming at first. This lesson will help you become familiar with the Excel 2007 program screen as well as the new user interface.

Exercise Notes

- **Exercise File:** None required.
- **Exercise:** Understand and experiment with the different parts of the Microsoft Office Excel 2007 screen.



A	**Office Button:** Replaces the File menu found in previous versions of Excel.	H	**View buttons:** Use these buttons to quickly switch between Normal, Page Layout, and Page Break Preview views.
B	**Quick Access Toolbar:** Contains common commands such as Save and Undo. You can add more commands as well.	I	**Worksheet tabs:** Workbooks have three worksheets by default. You can move from one worksheet to another by clicking the worksheet tabs.
C	**Title bar:** Displays the name of the workbook you are working on and the name of the program you are using.	J	**Status bar:** Displays messages and feedback on the current state of Excel. Right-click the status bar to configure it.
D	**Close button:** Click the close button in the Title bar to exit the Excel program entirely, or click the close button in the Ribbon to close only the current workbook.	K	**Name box:** Displays the active cell address or object name. Click the list arrow to enter formulas.
E	**Ribbon:** The tabs and groups on the Ribbon replace the menus and toolbars found in previous versions of Excel.	L	**Row and column headings:** Cells are organized and referenced by row and column headings (for example, cell A1).
F	**Scroll bars:** Use the vertical and horizontal scroll bars to view different parts of the worksheet.	M	**Active cell:** You can enter or edit data in the active cell.
G	**Zoom slider:** Click and drag the slider to zoom in or out of a window. You can also use the + and – buttons.	N	**Formula Bar:** Allows you to view, enter, and edit data in the active cell. Displays values or formulas in the cell.

Understanding the Ribbon

Excel 2007 provides easy access to commands through the Ribbon, which replaces the menus and toolbars found in previous versions of Excel. The Ribbon keeps commands visible while you work instead of hiding them under menus or toolbars.

The Ribbon is made up of three basic components:

Tabs

Commands are organized into *tabs* on the Ribbon. Each tab contains a different set of commands. There are three different types of tabs:

- **Command tabs:** These tabs appear by default whenever you open the Excel program. In Excel 2007, the Home, Insert, Page Layout, Formulas, Data, Review, and View tabs appear by default.
- **Contextual tabs:** Contextual tabs appear whenever you perform a specific task and offer commands relative to only that task. For example, whenever you insert a table, the Design tab appears on the Ribbon.
- **Program tabs:** If you switch to a different authoring mode or view, such as Print Preview, program tabs replace the default command tabs that appear on the Ribbon.

Groups

The commands found on each tab are organized into *groups* of related commands. For example, the Font group contains commands used for formatting fonts. Click the Dialog Box Launcher ( ) in the bottom-right corner of a group to display even more commands. Some groups also contain galleries that display several formatting options.

Buttons

One way to issue a command is by clicking its *button* on the Ribbon. Buttons are the smallest element of the Ribbon.

Tips

✓ You can hide the Ribbon so that only tab names appear, giving you more room in the program window. To do this, double-click the currently displayed command tab. To display the Ribbon again, click any tab.

✓ Based on the size of the program window, Excel changes the appearance and layout of the commands within the groups.

Exercise

- **Exercise File:** None required.
- **Exercise:** Click each tab on the Ribbon to view its commands.

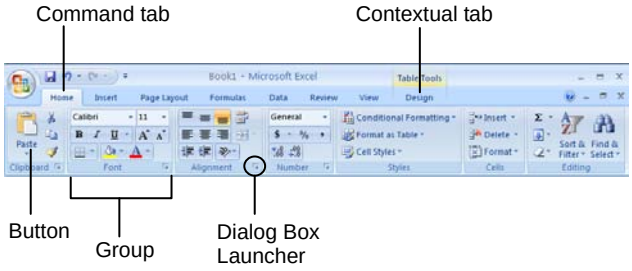


Figure 1-3: Ribbon elements.

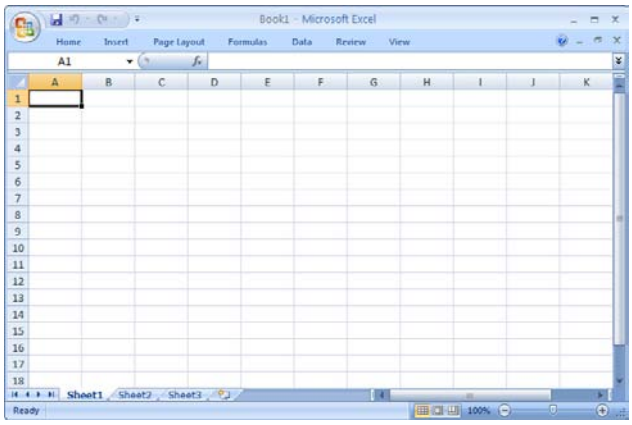


Figure 1-4: Hiding the Ribbon gives you more room in the program window.

Using the Office Button and Quick Access Toolbar

Near the Ribbon at the top of the program window are two other tools you can use to give commands in Excel 2007: The Office Button and the Quick Access Toolbar.

Office Button

The *Office Button* appears in the upper-left corner of the program window and contains basic file management commands including New, which creates a new file; Open, which opens a file; Save, which saves the currently opened file; and Close, which closes the currently opened file.

Tips

✓ The Office Button replaces the File menu found in previous versions of Excel.

Quick Access Toolbar

The *Quick Access Toolbar* appears to the right of the Office Button and provides easy access to the commands you use most frequently. By default, the Save, Undo and Redo buttons appear on the toolbar; however, you can customize this toolbar to meet your needs by adding or removing buttons.

1. Click the **Customize Quick Access Toolbar** button at the end of the Quick Access Toolbar.

   A list of commands you can add to the Quick Access Toolbar appears.

2. Select the commands you want to add or remove.

   The commands are added as buttons on the Quick Access Toolbar.

Tips

✓ You can change where the Quick Access Toolbar appears in the program window. To do this, click the **Customize Quick Access Toolbar** button at the end of the Quick Access Toolbar. Select **Show Below the Ribbon** or **Show Above the Ribbon**, depending on the toolbar's current location.

Exercise

- **Exercise File:** None required.
- **Exercise:** Click the Office Button to open it. Move the Quick Access Toolbar below the Ribbon, then move it back above the Ribbon.

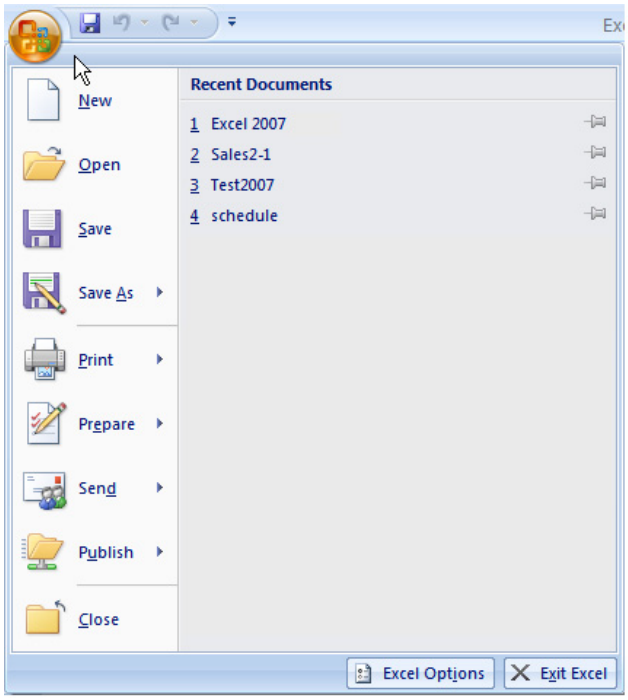


Figure 1-5: The Office Button menu.

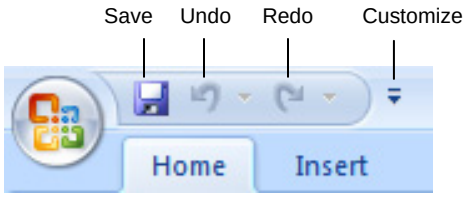


Figure 1-6: The Quick Access Toolbar.

Using Keyboard Commands

Another way to give commands in Excel 2007 is using the keyboard. There are two different types of keyboard commands in Excel 2007: keystroke shortcuts and Key Tips.

Keystroke shortcuts

Without a doubt, *keystroke shortcuts* are the fastest way to give commands in Excel 2007. They're especially great for issuing common commands, such as saving a workbook.

In order to issue a command using a keystroke shortcut, you simply press a combination of keys on your keyboard. For example, rather than clicking the Copy button on the Ribbon to copy a cell, you could press and hold the copy keystroke shortcut, <Ctrl> + <C>.

Key Tips

New in Excel 2007, *Key Tips* appear whenever you press the <Alt> key. You can use Key Tips to perform just about any action in Excel, without ever having to use the mouse.

To issue a command using a Key Tip, first press the <Alt> key. Tiny letters and numbers, called *badges*, appear on the Office Button, the Quick Access Toolbar, and all of the tabs on the Ribbon. Depending on the tab or command you want to select, press the letter or number key indicated on the badge. Repeat this step as necessary until the desired command has been issued.

Exercise

- **Exercise File:** None required.
- **Exercise:** Memorize some common keystroke shortcuts. Then view Key Tips in the program.

Table 1-2: Common Keystroke Shortcuts

<Ctrl> + <O>	Opens a workbook.
<Ctrl> + <N>	Creates a new workbook.
<Ctrl> + <S>	Saves the current workbook.
<Ctrl> + <P>	Prints the worksheet.
<Ctrl> + <B>	Toggles bold font formatting.
<Ctrl> + <I>	Toggles italic font formatting.
<Ctrl> + <C>	Copies the selected cell, text or object.
<Ctrl> + <X>	Cuts the selected cell, text or object.
<Ctrl> + <V>	Pastes the selected cell, text or object.
<Ctrl> + <Home>	Moves the cell pointer to the beginning of the worksheet.
<Ctrl> + <End>	Moves the cell pointer to the end of the worksheet.

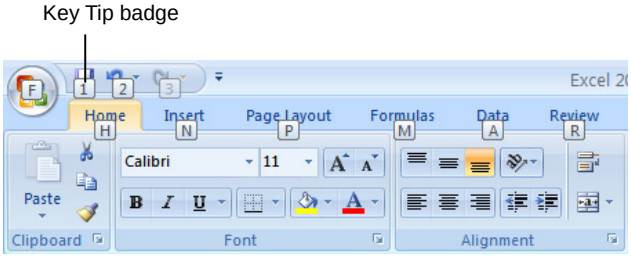


Figure 1-7: Press the <Alt> key to display Key Tips.

Using Contextual Menus and the Mini Toolbar

There are two tools that you can use in Excel 2007 that make relevant commands even more readily available: contextual menus and the Mini Toolbar.

Exercise

- **Exercise File:** None required.
- **Exercise:** Open a contextual menu in the main area and other parts of the program window.

Contextual menus

A *contextual menu* displays a list of commands related to a specific object or area. To open a contextual menu:

1. Right-click an object or area of the worksheet or program screen.

   A contextual menu appears, displaying commands that are relevant to the object or area that you right-clicked.

2. Select an option from the contextual menu, or click anywhere outside the contextual menu to close it without selecting anything.

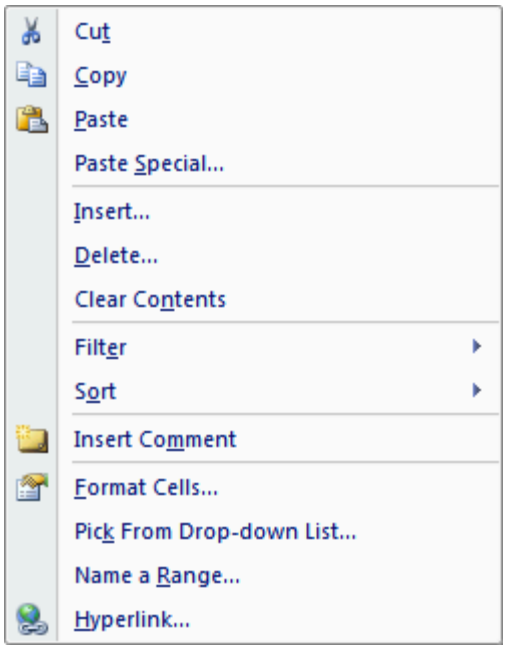


Figure 1-8: A contextual menu.

The Mini Toolbar

New in Excel 2007 is the *Mini Toolbar*, which appears when you select text or data within a cell or the formula bar, and contains common text formatting commands.

1. Select text or data within a cell or the formula bar.

   The Mini Toolbar appears above the text or data you selected.

   Trap: Sometimes the Mini Toolbar can be hard to see due to its transparency. To make the Mini Toolbar more visible, point to it.

   Tip: A larger version of the Mini Toolbar also appears along with the contextual menu whenever you right-click an object or area.

2. Click the desired command on the Mini Toolbar or click anywhere outside the Mini Toolbar to close it.

   Tip: If you don't want the Mini Toolbar to appear every time, click the **Office Button** and click the **Excel Options** button. Click the **Personalize** category, uncheck the **Show Mini Toolbar on selection** check box, and click **OK**.

Figure 1-9: The Mini Toolbar.

Using Help

When you don't know how to do something in Excel 2007, look up your question in the Excel Help files. The Excel Help files can answer your questions, offer tips, and provide help for all of Excel's features.

Search for help

1. Click the **Microsoft Office Excel Help** button () on the Ribbon.

   The Excel Help window appears.

   Other Ways to Open the Help window: Press **<F1>**.

2. Type what you want to search for in the "Type words to search for" box and press **<Enter>**.

   A list of help topics appears.

3. Click the topic that best matches what you're looking for.

   Excel displays information regarding the selected topic.

Browse for help

1. Click the **Microsoft Office Excel Help** button () on the Ribbon.

   The Excel Help window appears.

2. Click the category that you want to browse.

   The topics within the selected category appear.

3. Click the topic that best matches what you're looking for.

   Excel displays information regarding the selected topic.

Choose the Help source

If you are connected to the Internet, Excel 2007 retrieves help from the Office Online database by default. You can easily change this to meet your needs.

1. Click the **Search** button list arrow in the Excel Help window.

   A list of help sources appears.

2. Select an option from the list.

   Now you can search from that source.

Exercise

- **Exercise File:** None required.
- **Exercise:** Search the term "formatting numbers". Browse topics in the "Worksheet and Excel table basics" category of Help. Search the term "formatting numbers" again using help files from this computer only.

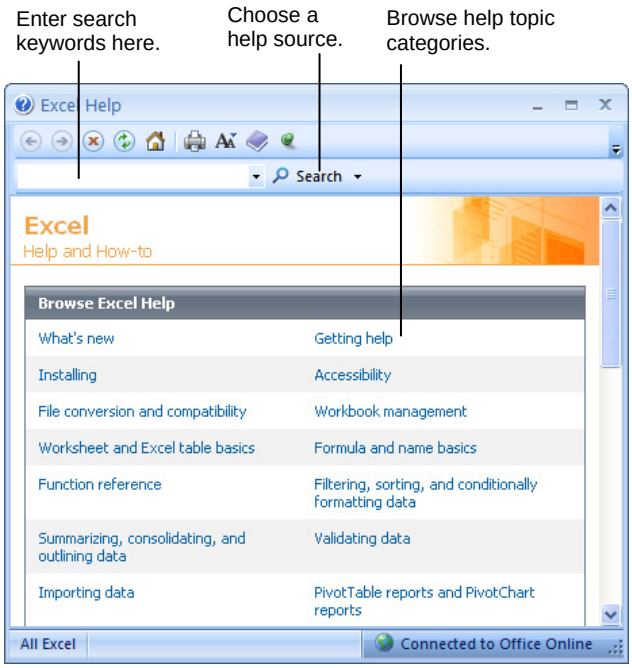


Figure 1-10: The Excel Help window.

Table 1-3: Help buttons

	Back	Click here to move back to the previous help topic.
	Forward	Click here to move forward to the next help topic.
	Home	Click here to return to the Help home page.
	Print	Click here to print the current help topic.
	Change Font Size	Click here to change the size of the text in the Help window.
	Show Table of Contents	Click here to browse for help using the Table of Contents.
	Keep On Top	Click here to layer the Help window so that it appears behind all other Microsoft Office programs.

Tips

- ✓ When a standard search returns too many results, try searching offline to narrow things down a bit.
- ✓ Office 2007 offers enhanced ScreenTips for many buttons on the Ribbon. You can use these ScreenTips to learn more about what a button does and, where available, view a keystroke shortcut for the command. If you see the message “Press F1 for more help”, press <F1> to get more information relative to that command.
- ✓ When you are working in a dialog box, click the **Help** button ( ) in the upper right-hand corner to get help regarding the commands in the dialog box.

Exiting Excel 2007

When you're finished using Excel 2007, you should exit it. *Exiting* a program closes it until you need to use it again.

1. Click the **Office Button**.

2. Click the **Exit Excel** button.

The Excel program closes.

Other Ways to Exit Excel:
If there is only one Excel program window open, click the **Close** button in the title bar.

Tips

✓ Having too many programs open at a time could slow down your computer, so it's a good idea to exit all programs that aren't being used.

Exercise

- **Exercise File:** None required.
- **Exercise:** Exit the Microsoft Office Excel 2007 program.

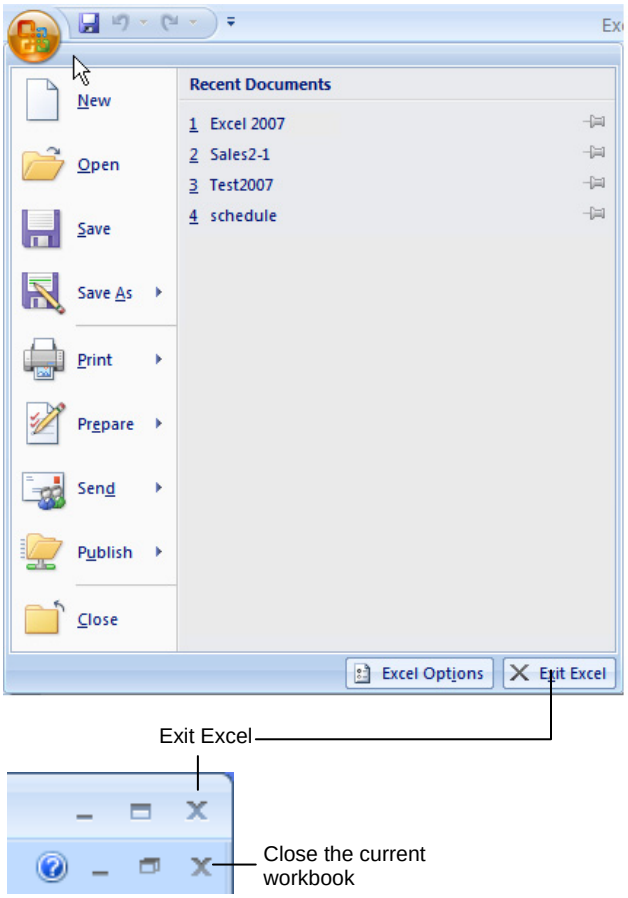


Figure 1-11: Two ways to Exit Excel.

2

Worksheet Basics

Creating a New Workbook 22
Create a new blank workbook 22
Create a workbook from a template 22

Opening a Workbook 23

Navigating a Worksheet 24

Entering Labels 25

Entering Values 26

Selecting a Cell Range 27

Overview of Formulas and Using AutoSum ... 28

Entering Formulas 29

Using AutoFill 31

Understanding Absolute and Relative Cell References 32
Create a relative cell reference in a formula 32
Create an absolute cell reference in a formula 32

Using Undo, Redo and Repeat 33
Undo a single action 33
Undo multiple actions 33
Redo an action 33
Repeat an action 34

Saving a Workbook 35
Save a new workbook 35
Save workbook changes 36
Save a workbook under a different name and/or location 36
Save a workbook as a different file type .. 36

Previewing and Printing a Worksheet 37
Preview a worksheet 37
Quick Print a worksheet 37
Print a worksheet 37

Closing a Workbook 38

This chapter will introduce you to Excel basics—what you need to know to create, print, and save a worksheet.

We don't get into great depth here, but we make sure you understand key Excel functionality, such as entering data and the basics of using formulas. This chapter will help you build a solid foundation of Excel knowledge.

Using Exercise Files

This chapter suggests exercises to practice the topic of each lesson. There are two ways you may follow along with the exercise files:

- Open the exercise file for a lesson, perform the lesson exercise, and close the exercise file.
- Open the exercise file for a lesson, perform the lesson exercise, and keep the file open to perform the remaining lesson exercises for the chapter.

The exercises are written so that you may "build upon them", meaning the exercises in a chapter can be performed in succession from the first lesson to the last.

Creating a New Workbook

Creating a new workbook is one of the most basic commands you need to know in Excel. A new workbook automatically appears upon starting Excel, but it's also helpful to know how to create a new workbook within the application. You can create a blank new workbook, such as the one that appears when you open Excel, or you can create a new workbook based on a template.

Create a new blank workbook

1. Click the **Office Button** and select **New**.

   The New Workbook dialog box appears. By default, the Blank Workbook option is already selected.

2. Make sure the **Blank Workbook** option is selected and click **Create**.

   The new blank workbook appears in the Excel application screen.

   Other Ways to Create a Blank Workbook: Double-click the **Blank Workbook** option. Or press **<Ctrl>** + **<N>**.

Create a workbook from a template

1. Click the **Office Button** and select **New**.

   The New Workbook dialog box appears. There are several ways you can create a new workbook from a template. Different categories are listed to the left:

   - **Blank and recent:** This category is selected by default. Select a template in the Recently Used Templates area and click **Create**.
   - **Installed Templates:** Click this category to view templates that were installed on your computer with Microsoft Office. Select the template from which you want to create a new workbook and click **Create**.
   - **My templates:** Select **My Templates** to open a dialog box that displays templates you have created and saved on your computer.
   - **New from existing:** Select **New from Existing** to open a dialog box that allows you to browse for a workbook on your computer that you want to base a new workbook on. This is essentially like creating a copy of an existing file.
   - **Microsoft Office Online:** Click a category to view templates that you can download from Office Online. Find the template you want to download and click **Download**.

Exercise

- **Exercise File:** None required.
- **Exercise:** Create a new blank workbook. Then create a new workbook from a Microsoft Office Online template.

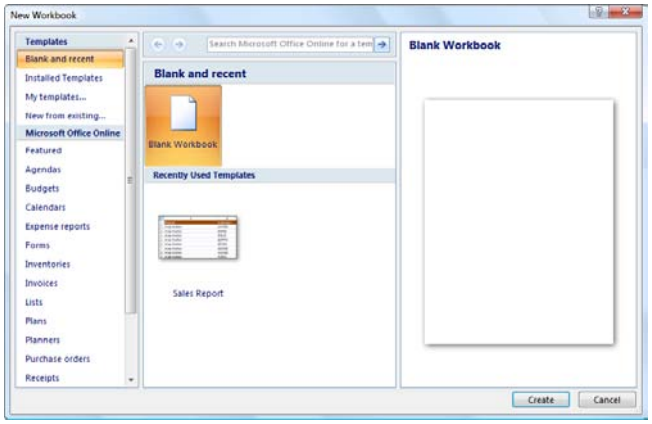


Figure 2-1: The New Workbook dialog box.

Opening a Workbook

Opening a workbook lets you work on a workbook that you or someone else has previously created and then saved. This lesson explains how to open a saved workbook.

Exercise

- **Exercise File:** Sales2-1 xlsx
- **Exercise:** Open a previously-saved workbook.

Open a workbook

You can locate an Excel file on your computer and simply double-click it to open it, but you can also open a workbook from within the Excel program.

1. Click the **Office Button** and select **Open**.

   The Open dialog box appears. Next, you have to tell Excel where the file you want to open is located.

   Other Ways to Open a Workbook:
   Press **<Ctrl>** + **<O>**.

2. Navigate to the location of the saved file.

   The Open dialog box has several controls that make it easy to navigate to locations and find files on your computer:

   - **Address bar:** Click a link in the Address bar to open it. Click the arrow to the right of a link to open a list of folder within that location. Select a folder from the list to open it.
   - **Favorite Links:** Shortcuts to common locations on your computer, such as the Desktop and Documents Folder.
   - **Search box:** This searches the contents—including subfolders—of that window for the text that you type. If a file's name, file content, tags, or other file properties match the searched text, it will appear in the search results. Search results appear as you enter text in the search box.

3. Select the file you want to open and click **Open**.

   Excel displays the file in the application window.

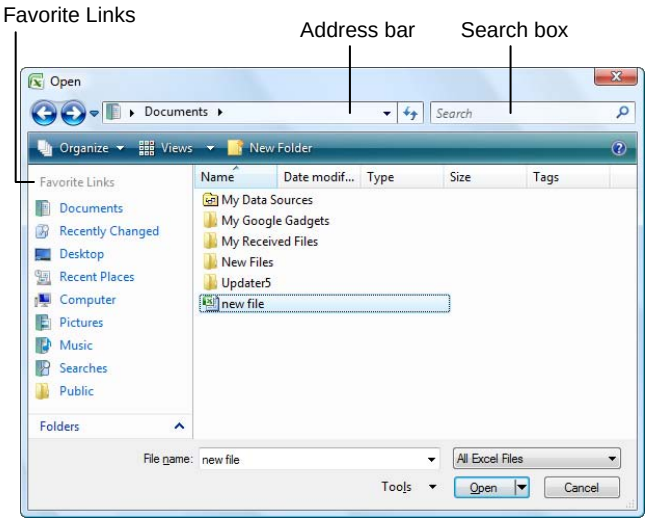


Figure 2-2: The Open dialog box. To open a file, you must first navigate to the folder where it is saved. Most new files are saved in the Documents folder by default.

Tips

- ✓ To open a workbook that has been used recently, click the **Office Button** and select a workbook from the Recent Documents menu.
- ✓ You can pin a workbook to the Recent Documents menu so that it is always available there. Click the **Office Button** and click the **Pin** button next to the workbook that you want to always be available. Click the workbook's **Pin** button again to unpin the workbook from the Recent Documents menu.

Navigating a Worksheet

Before you start entering data into a worksheet, you need to learn how to move around in one. You must make a cell active by selecting it before you can enter information in it. You can make a cell active by using:

- **The Mouse:** Click any cell with the white cross pointer.
- **The Keyboard:** Move the cell pointer using the keyboard's arrow keys.

To help you know where you are in a worksheet, Excel displays row headings, indentified by numbers, on the left side of the worksheet, and column headings, identified by letters, at the top of the worksheet. Each cell in a worksheet has its own *cell address* made from its column letter and row number—such as cell A1, A2, B1, B2, etc. You can immediately find the address of a cell by looking at the *Name Box*, which shows the current cell address.

1. Click any **cell** to make it active.

The cell address appears in the name box.

Now that you're familiar with moving the cell pointer with the mouse, try using the keyboard.

2. Press **<Tab>**.

The active cell is one cell to the right of the previous cell. Refer to Table 2-1: Navigation Shortcuts for more information on navigating shortcuts.

Tips

- ✓ Excel 2007 worksheets have 1,048,576 rows and 16,384 columns! To view the off-screen portions of the worksheet, use the horizontal and vertical scroll bars.
- ✓ To select contents within a cell, double-click the cell, then click and drag to select the desired contents.
- ✓ Using the <Ctrl> key with arrow keys is very powerful. These key combinations jump to the edges of data. For example, if you have a group of data in columns A-G and another group in columns R-Z, <Ctrl> + <→> jumps between each group of data.

Exercise Notes

- **Exercise File:** Sales2-1 xlsx
- **Exercise:** Practice moving around in the worksheet using both the mouse and keyboard.

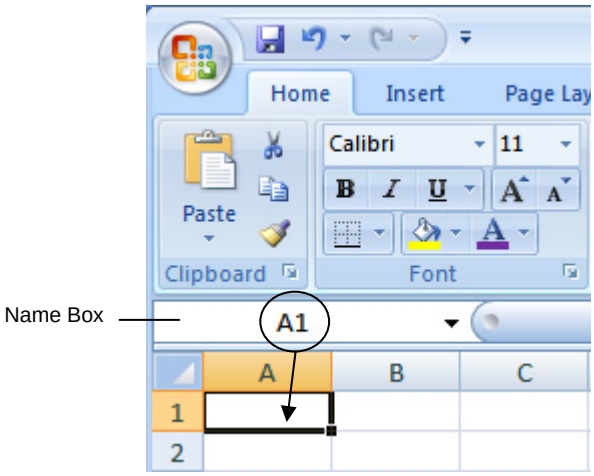


Figure 2-3: A cell address in the Name Box.

Table 2-1: Navigation Shortcuts

Press	To Move
→ or <Tab>	One cell to the right.
← or <Shift> + <Tab>	One cell to the left.
↑ or <Shift> + <Enter>	One cell up.
↓ or <Enter>	One cell down.
<Home>	To column A in the current row.
<Ctrl> + <Home>	To the first cell (A1) in the worksheet.
<Ctrl> + <End>	To the last cell with data in the worksheet.
<Page Up>	Up one screen.
<Page Down>	Down one screen.
<F5> or <Ctrl> + <G>	Opens the Go To dialog box where you can go to a specified cell address.

Entering Labels

Now that you're familiar with worksheet navigation in Excel, you're ready to start entering data. There are two basic types of information you can enter in a cell:

- **Labels:** Any type of text or information not used in calculations.
- **Values:** Any type of numerical data: numbers, percentages, fractions, currencies, dates, or times, usually used in formulas or calculations.

This lesson focuses on labels. Labels are used for worksheet, column, and row headings. They usually contain text, but can also consist of numerical information not used in calculations, such as serial numbers. Excel treats information beginning with a letter as a label and automatically left-aligns it inside the cell.

1. Click a cell where you want to add a label.

Don't worry if the cell already contains text—anything you type will replace the old cell contents.

2. Type the label, such as a row heading, in the cell.

3. Press the **<Enter>** or **<Tab>** key.

The cell entry is confirmed and the next cell down becomes active.

Other Ways to Confirm a Cell Entry:
Click the **Enter** button on the Formula Bar. Or, press the **<Tab>** key.

If the label is too large to fit in the cell, the text spills into the cell to the right, as long as that cell is empty. If not, Excel truncates the text; it's still there—you just can't see it.

Tips

✓ Click the **Cancel** button on the Formula Bar to cancel typing and return the cell to its previous state.

✓ If you want to start a label with a number, type an apostrophe before the number to prevent Excel from recognizing the number as a value.

✓ AutoComplete can help you enter labels. Enter the first few characters of a label; Excel displays the label if it appears previously in the column. Press **<Enter>** to accept the entry or resume typing to ignore the suggestion.

✓ Labels that are wider than the column in which they are entered automatically overlap the cell in the next column over. Resize the width of the column to fix this problem, something we'll cover later on.

Exercise Notes

- **Exercise File:** Sales2-1 xlsx
- **Exercise:** Type the label "Sales and Expenses" in cell A1 and the labels "Supplies", "Office", "Salaries", "Utilities", and "Total" in the cell range A7:A11.

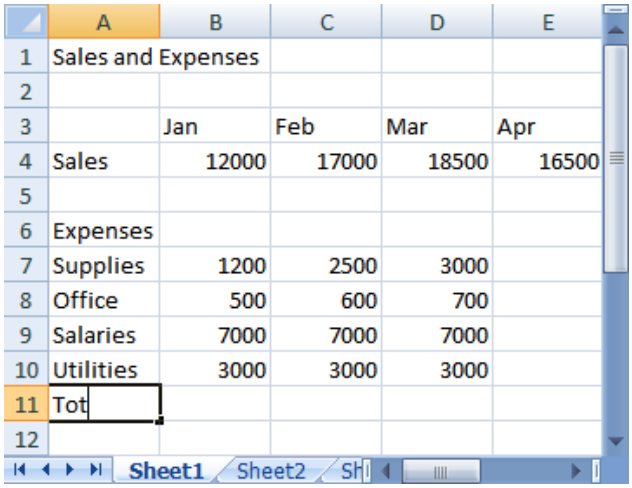


Figure 2-4: Entering a label in a cell.

Entering Values

Now that you know how to enter labels, it's time to work with the other basic type of worksheet information: values. Values are the numerical data in a worksheet that are used in calculations. A value can be any type of numerical information: numbers, percentages, fractions, currencies, dates, and times.

Entering values in a worksheet is no different from entering labels—you simply type the value and confirm the entry.

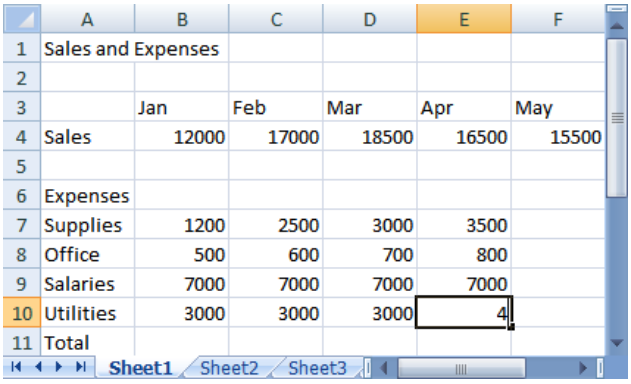
1. Click a **cell** and type a value.
2. Press **<Enter>** or **<Tab>** to confirm the entry.

Tips

- ✓ Excel treats information that contains numbers, dates or times as a value and automatically right-aligns it in the cell.
- ✓ Values don't have to contain only numbers. You can also use numerical punctuation such as a period or a dollar sign.
- ✓ You can reformat dates after entering them. For example, if you enter 4/4/07, you can easily reformat to April 4, 2007.

Exercise Notes

- **Exercise File:** Sales2-2 xlsx
- **Exercise:** Enter the following values in the cell range E7:E10: 3500, 800, 7000, 4000.



	A	B	C	D	E	F
1	Sales and Expenses					
2						
3		Jan	Feb	Mar	Apr	May
4	Sales	12000	17000	18500	16500	15500
5						
6	Expenses					
7	Supplies	1200	2500	3000	3500	
8	Office	500	600	700	800	
9	Salaries	7000	7000	7000	7000	
10	Utilities	3000	3000	3000	4	
11	Total					

Sheet1 Sheet2 Sheet3

Figure 2-5: Entering a value in a cell.

Selecting a Cell Range

To work with a range of cells, you need to know how to select multiple cells.

1. Click the first cell you want to select in the cell range and hold the mouse button.
2. Drag to select multiple cells.

   As you drag, the selected cells are highlighted.
3. Release the mouse button.

   The cell range is selected.

Other Ways to Select a Cell Range:
Press and hold the **<Shift>** key and use the arrow keys to select multiple cells.

Tips

- ✓ To select all the cells in a worksheet, click the **Select All** button where the row and column headers come together, or press **<Ctrl>** + **<A>**.
- ✓ To select multiple non-adjacent cells, select a cell or cell range and hold down the **<Ctrl>** key while you select other cells.

Exercise Notes

- **Exercise File:** Sales2-3 xlsx
- **Exercise:** Select the cell range E7:E10.

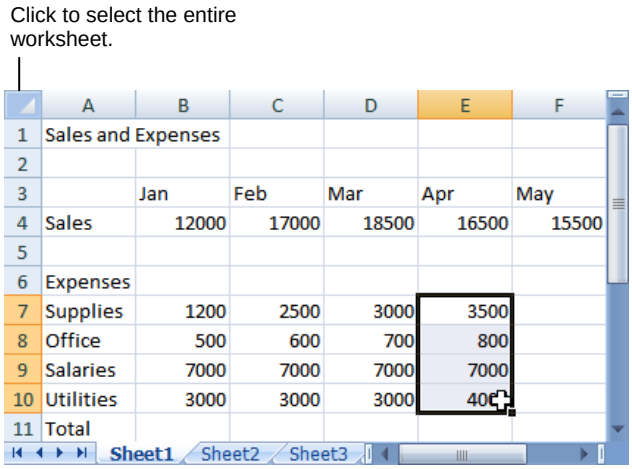

Click to select the entire worksheet.
A B C D E F
1 Sales and Expenses
2
3 Jan Feb Mar Apr May
4 Sales 12000 17000 18500 16500 15500
5
6 Expenses
7 Supplies 1200 2500 3000 3500
8 Office 500 600 700 800
9 Salaries 7000 7000 7000 7000
10 Utilities 3000 3000 3000 40
11 Total
Sheet1 Sheet2 Sheet3

Figure 2-6: Selecting a range of cells with the mouse.

Overview of Formulas and Using AutoSum

This lesson introduces what spreadsheet programs are really all about: formulas.

Formula overview

Formulas are values, but unlike regular values, formulas contain information to perform a numerical calculation, such as adding, subtracting, or multiplying.

All formulas must start with an equal sign (=). Then you must specify two more types of information: the values you want to calculate and the arithmetic operator(s) or function name(s) you want to use to calculate the values. Formulas can contain numbers, like 5 or 8, but more often they reference the contents of cells. For example, the formula =A5+A6 adds the values in cells A5 and A6. Using these *cell references* is advantageous because if you change the values in the referenced cells, the formula result updates automatically to take the new values into account.

You're already familiar with some of the arithmetic operators used in Excel formulas, such as the plus sign (+). Functions are pre-made formulas that you can use as shortcuts or to perform calculations that are more complicated. For example, the PMT function calculates loan payments based on an interest rate, the length of the loan, and the principal amount of the loan.

AutoSum

SUM is a common Excel function used to find the total of a range of cells. Excel has a shortcut button, called AutoSum, that can insert the formula for you.

1. Click a **cell** next to the column or row of numbers you want to sum.

2. Click the **Home** tab and click the **AutoSum** button in the Editing group.

   The SUM function appears in the cell and a moving dotted line appears around the cell range that Excel thinks you want to sum. If the range is not correct, click and drag to select the correct range.

   Tip: Click the **AutoSum** button list arrow to choose from other common functions, such as Average.

3. Press the **<Enter>** key to confirm the action.

   The cell range is totaled in the cell. If you change a value in the summed range, the formula will automatically update to show the new sum.

Exercise Notes

- **Exercise File:** Sales2-3 xlsx.
- **Exercise:** AutoSum the column B expense values in cell B11.

Figure 2-7: The AutoSum button in the Editing group.

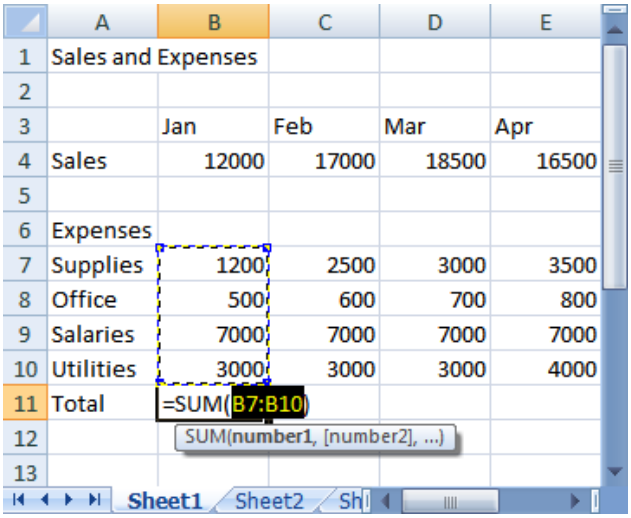

A B C D E
1 Sales and Expenses
3 Jan Feb Mar Apr
4 Sales 12000 17000 18500 16500
6 Expenses
7 Supplies 1200 2500 3000 3500
8 Office 500 600 700 800
9 Salaries 7000 7000 7000 7000
10 Utilities 3000 3000 3000 4000
11 Total =SUM(B7:B10)
SUM(number1, [number2], ...)
Sheet1 Sheet2

Figure 2-8: Using the SUM function in a formula to sum a range of cells.

Entering Formulas

This lesson takes a look at entering formulas manually, instead of using a shortcut like the AutoSum button.

A formula starts with an equal sign, followed by:

- Values or cell references joined by an operator.

  Example: =A1+A2.

- A function name followed by parentheses containing function arguments.

  Example: =SUM(A1:A2).

Try entering a formula yourself.

1. Click a cell where you want to enter a formula.
2. Type =, then enter the formula.

   You can also enter the formula in the Formula Bar.
3. Press the **<Enter>** key.

The formula calculates the result and displays it in the cell where you entered it. See Table 2-2: Examples of Operators, References, and Formulas for examples of common formulas in Excel.

Other Ways to Enter a Function:
Select the cell where you want to insert the function. Click the **Insert Function** button in the Formula Bar or click the **Formulas** tab on the Ribbon and click the **Insert Function** button. Select the function you want to use and click **OK**. Enter the function arguments and click **OK**.

Tips

✓ You can adjust the size of the Formula Bar. Click and drag the rounded edge of the Name Box to adjust it horizontally. To adjust it vertically, click and drag the bottom border of the Formula Bar or click the Expand Formula Bar button at the end of the Formula Bar.

✓ You can use the Formula AutoComplete feature to help you create and edit complex formulas. Type an = (equal sign) in a cell or the Formula Bar and start typing the formula. As you do this, a list appears of functions and names that fit with the text you entered. Select an item from the list to insert it into the formula.

Exercise Notes

- **Exercise File:** Sales2-4 xlsx.
- **Exercise:** Manually enter a SUM formula in cell C11 to total the expense values in column C.

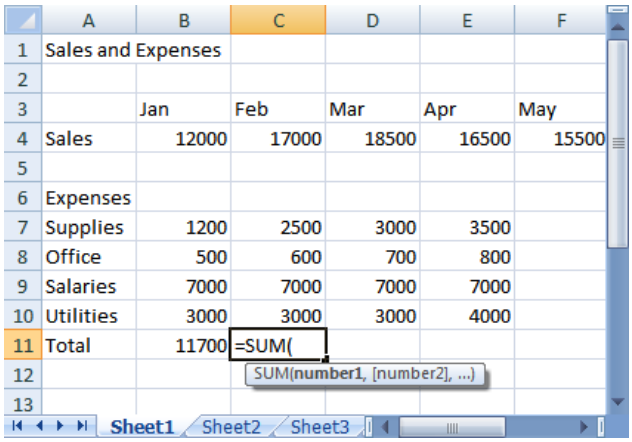

A B C D E F
1 Sales and Expenses
3 Jan Feb Mar Apr May
4 Sales 12000 17000 18500 16500 15500
6 Expenses
7 Supplies 1200 2500 3000 3500
8 Office 500 600 700 800
9 Salaries 7000 7000 7000 7000
10 Utilities 3000 3000 3000 4000
11 Total 11700 =SUM(
SUM(number1, [number2], ...)
Sheet1 Sheet2 Sheet3

Figure 2-9: Manually entering a formula.

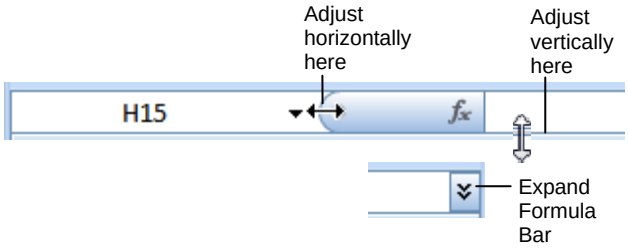


Figure 2-10: Adjusting the size of the Formula bar.

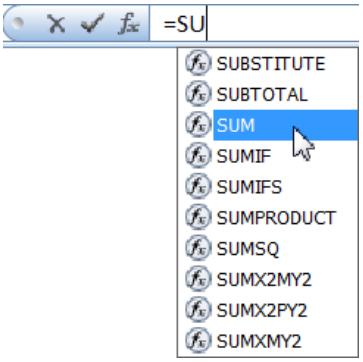


Figure 2-11: The Formula AutoComplete feature appears as you enter a formula in the Formula bar.

Table 2-2: Examples of Operators, References, and Formulas

Operator or Function Name	Purpose	Example
=	All formulas must start with an equal sign.	
+	Performs addition between values.	=A1+B1
-	Performs subtraction between values.	=A1-B1
*	Performs multiplication between values.	=B1*2
/	Performs division between values.	=A1/C2
SUM	Adds all the numbers in a range.	=SUM(A1:A3)
AVERAGE	Calculates the average of all the numbers in a range.	=AVERAGE(A2,B1,C3)
COUNT	Counts the number of items in a range.	=COUNT(A2:C3)

Using AutoFill

AutoFill is a great way to quickly enter sequential numbers, months or days. AutoFill looks at cells that you have already filled in and makes a guess about how you would want to fill in the rest of the series. For example, imagine you're entering all twelve months as labels in a worksheet. With AutoFill, you only have to enter January and February and AutoFill will enter the rest for you.

1. Select a cell or cell range that contains the data and increment you want to use.

Excel can detect patterns pretty easily. A series of 1, 2, 3, 4 is easy to detect, as is 5, 10, 15, 20. It can also detect a pattern with mixed numbers and letters, such as UPV-3592, UPV-3593, UPV-3594. See Table 2-3: Examples of AutoFill for more information.

2. Position the mouse pointer over the fill handle (the tiny box in the cell's lower-right corner) until the pointer changes to a plus sign **+**.

3. Click and drag the fill handle to the cells that you want to AutoFill with the information.

As you click and drag, a screen tip appears previewing the value that will be entered in the cell once you release the mouse button.

Tip: AutoFill is also a quick way to copy cells.

Tips

- ✓ If you select only one cell, that same value is copied to the adjacent cells when you AutoFill—unless Excel recognizes it as a date or time, in which case it will fill in the next logical date or time period.
- ✓ If you use AutoFill to copy a cell containing a formula with a cell reference, such as =A3, the filled cells will contain updated formulas that are relative to their location. For example, if you AutoFill the formula =A3 from cell D5 to cell E5, cell E5 will be filled with the formula =B3.
- ✓ If you're working with a data series that increases by increments other than one (such as every-other day or every-other month), select the cells that show Excel the increment to use when filling the data series. For example, if you enter 3 and 5 in adjacent cells, select both cells and AutoFill the next cell; Excel will enter 7 in that next cell.
- ✓ After using AutoFill the AutoFill Options button appears. Click this button to view different ways to perform or complete the AutoFill.

Exercise Notes

- **Exercise File:** Sales2-5 xlsx.
- **Exercise:** Use AutoFill to fill in the months in row 3. Labels should start with Jan in column B and end with June in column G. Use AutoFill to copy cell range E7:E10 over to column F, then copy cell C11 over to columns D, E, and F.

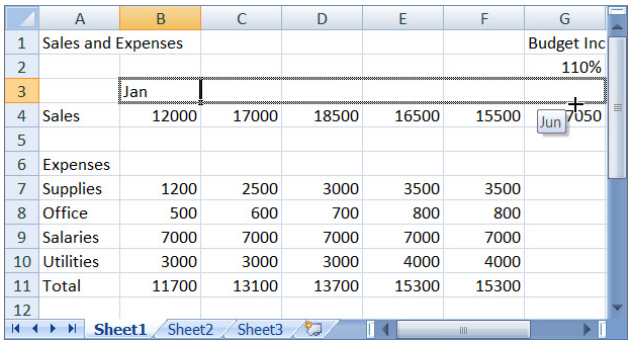
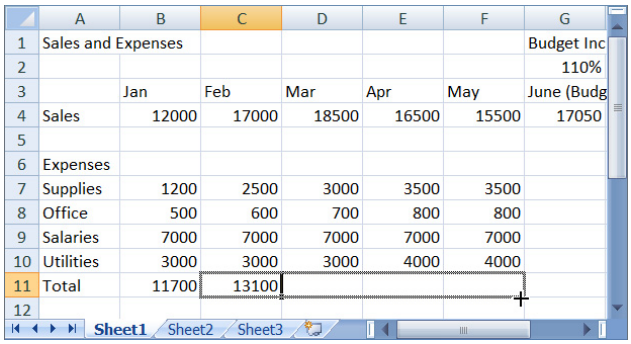


Figure 2-12: In this example, AutoFill fills in months after January into the selected cells. Notice that a screen tip appears to show the content being filled into the cells.



In this example, AutoFill copies the formula from C11 into the other cells.

Figure 2-13: Copying a formula using the AutoFill feature.

Table 2-3: Examples of AutoFill

Selected Cell(s)	AutoFill Entries in Next Three Cells
January	February, March, April
5:00	6:00, 7:00, 8:00
Quarter 1	Quarter 2, Quarter 3, Quarter 4
5 **10**	15 20 25

Understanding Absolute and Relative Cell References

A cell reference identifies a cell or cell range and tells Excel which values to use in a formula. There are two types of cell references.

- **Relative:** Relative references (like A1) tell Excel how to find another cell starting from the cell that contains the formula. Using a relative reference is like giving someone directions that explain where to go from where they are currently standing. When a formula containing relative references is moved, it will reference new cells based on their location to the formula.

  For example, if cell A2 contained the formula =A1, and you copied and pasted the formula to cell B2, the formula in B2 would read =B1 because the reference is relative to the location of the formula.

- **Absolute:** Absolute references (like $A$1) always refer to the same cell address, even if the formula is moved.

  For example, if cell A2 contained the formula =$A$1, and you copied and pasted the formula to cell B2, the formula in B2 would still read =$A$1.

Create a relative cell reference in a formula

Relative cell addresses are usually the desired way to reference other cells in formulas, which is why they are the default method used by Excel to reference cells.

1. Click the cell you want to reference, for example click cell B4.

   Other Ways to Create a Relative Cell Reference in a Formula:
   Type the address of the cell, for example type B4.

Create an absolute cell reference in a formula

If you want a cell reference to always refer to a particular cell address, you need to use an absolute cell reference.

1. Press and hold the **<F4>** key as you click the cell you want to reference.

   Dollar signs $ are added to the cell reference.

   Other Ways to Add an Absolute Cell Reference in a Formula:
   Type the address of the cell with $ (dollar signs) before every reference heading. (For example, type $B$4).

Exercise Notes

- **Exercise File:** Sales 2-6 xlsx.
- **Exercise:** Enter the formula =F7*$G$2 in cell G7. Copy cell G7 to cells G8:G10. Copy cell F11 over to cell G11.

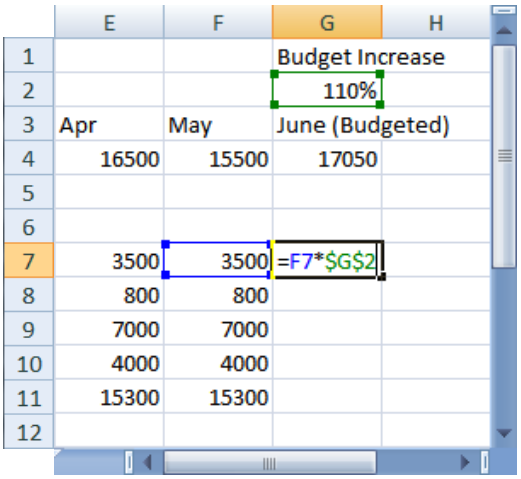


Figure 2-14: A formula with a relative (F7) and an absolute ($G$2) cell reference.

Here the formula from the previous figure has been filled down. The F7 reference has changed to F8 because it was relative, while $G$2 stayed the same because it was absolute.

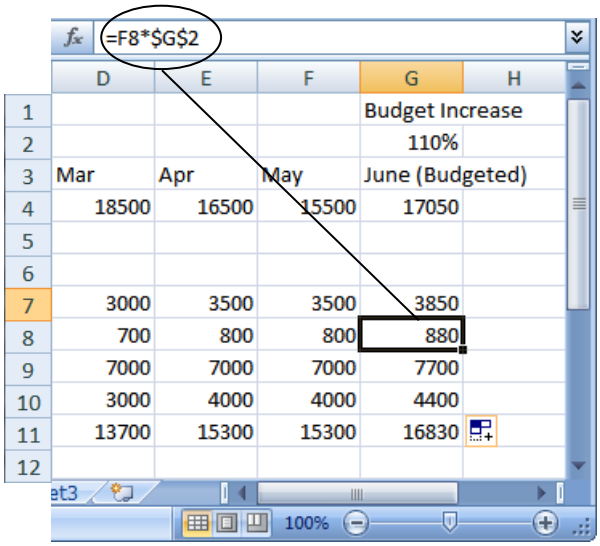


Figure 2-15: Relative vs. absolute cell references.

Using Undo, Redo and Repeat

The undo, redo, and repeat commands are very useful commands for working with cell contents and cell formatting.

Undo a single action

Undo does just that—it undoes any actions as though they never happened.

1. Click the **Undo** button on the Quick Access Toolbar.

   Your last action is undone. For example, if you had deleted an item and then decided you wanted to keep it after all, undo would make it reappear.

   Other Ways to Undo:
   Press **<Ctrl>** + **<Z>**.

Undo multiple actions

1. Click the **Undo** button list arrow on the Quick Access Toolbar.

   A list of the last actions in Excel appears. To undo multiple actions, point to the command you want to undo. For example, to undo the last three actions, point at the third action in the list. Each action done before the one you select is also undone.

   Tip: You can undo up to 100 actions in Excel, even after saving the workbook.

2. Click the last action you want to undo in the list.

   The command you select and all subsequent actions are undone.

Redo an action

Redo is the opposite of undo: it redoes an action you have undone. For example, if you decide that you do, after all, want to delete an item that you have just brought back with undo, you can redo the delete action.

1. Click the **Redo** button on the Quick Access Toolbar.

   The last action you undid is redone.

   Other Ways to Redo an Action:
   Press **<Ctrl>** + **<Y>**.

   Tip: Click the **Redo** button list arrow to redo multiple actions.

Exercise Notes

- **Exercise File:** Sales2-7 xlsx.
- **Exercise:** Type “Monthly” in cell A2 and press <Enter>. Undo the typing. Then redo the typing.

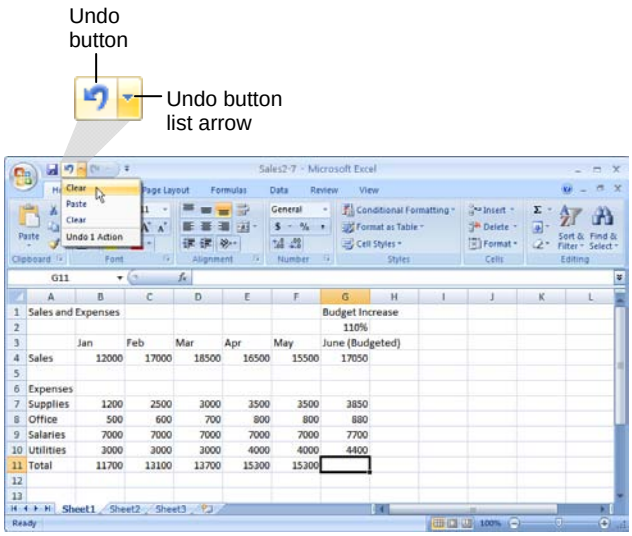


Figure 2-16: The Undo and Redo buttons.

Repeat an action

Repeat is different from redo, because repeat applies the last command to any selected text. For example, rather than applying bold formatting by clicking the Bold button repeatedly, you can repeat the bold command with the keystroke shortcut or Repeat button.

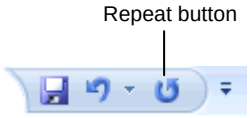


Figure 2-17: The Repeat button on the Quick Access Toolbar. This does not appear on the Quick Access Toolbar by default in Excel.

1. Press **<F4>**.

   The command is repeated.

   Other Ways to Repeat a Command:
   Add the Repeat command to the Quick Access Toolbar. Then, click the **Repeat** button on the Quick Access Toolbar to repeat the command.

Saving a Workbook

After you've created a workbook, you need to save it if you want to use it again. Also, if you make changes to a workbook you'll want to save it. You can even save a copy of an existing workbook with a new name, to a different location, or using a different file type.

Save a new workbook

1. Click the **Save** button on the Quick Access Toolbar.

   The Save As dialog box appears.

   Other Ways to Save:
   Press **<Ctrl>** + **<S>**. Or, click the **Office Button** and select **Save**.

2. Specify the drive and/or folder where you want to save your workbook.

   The Save As dialog box has several controls that make it easy to navigate to locations on your computer:

   - **Address bar:** Click a link in the Address bar to open it. Click the arrow to the right of a link to open a list of folder within that location. Select a folder from the list to open it.
   - **Favorite Links:** Shortcuts to common locations on your computer, such as the Desktop and Documents Folder.
   - **Folders List:** View the hierarchy of drives and folders on your computer by expanding the Folders list.

3. Enter the file name in the File name text box.

4. Click **Save**.

Exercise Notes

- **Exercise File:** None required.
- **Exercise:** Create a new workbook and save it with the file name "Saved Workbook." Type your name in cell A1 and save the workbook with a new name: "Updated Workbook".

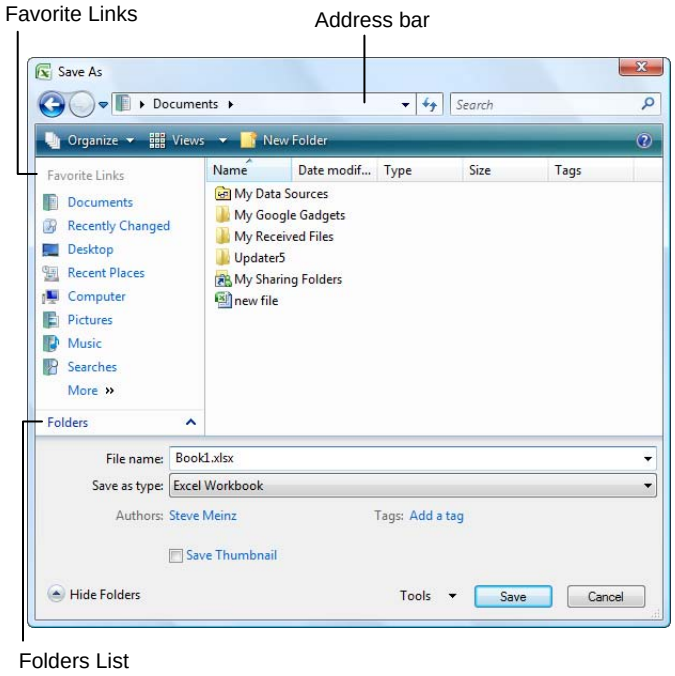


Figure 2-18: The Save As dialog box. New files are saved in the Documents folder by default.

Save workbook changes

Once you make changes to a workbook you've saved before, you need to save it again.

1. Click the **Save** button on the Quick Access Toolbar.

   Any changes you have made to the workbook are saved.

   Other Ways to Save:
   Press **<Ctrl>** + **<S>**. Or, click the **Office Button** and select **Save**.

Save a workbook under a different name and/or location

You can save another copy of a saved document using a new name or in a new location.

1. Click the **Office Button** and select **Save As**.

   The Save As dialog box appears.

2. Enter a different name for the file in the File name text box. And/or navigate to a new location to save the file.

3. Click **Save**.

Save a workbook as a different file type

Just as some people can speak several languages, Excel can read and write in other file formats. Saving a copy of a workbook in a different file type makes it easier to share information between programs.

1. Click the **Office Button** and select **Save As**.

   The Save As dialog box appears.

2. Click the **Save as type** list arrow and select a file format.

3. Click **Save**.

Table 2-4: Common Excel File Formats

File Type	Description
Excel Workbook (xlsx)	The default format for Excel 2007 workbooks.
Excel Macro-Enabled Workbook (xlsm)	This file format supports macros in Excel 2007.
Excel 97- Excel 2003 Workbook (xls)	Workbooks in this format can be used by all versions of Excel. Does not support XML.
PDF (.pdf)	Use this format for files you want to share, but do not want to be changed. Requires an Excel add-in.
Web page (htm, html)	This format is used to create Web pages.
XML Data (xml)	This file type is used exclusively for XML-enabled workbooks.

Previewing and Printing a Worksheet

Once you have created a worksheet, you can print copy of it—if your computer is connected to a printer. Before you do this, it's a good idea to preview how it's going to look.

Preview a worksheet

1. Click the **Office Button** and point to the **Print** list arrow.

   A list of print options appears in the right pane of the Office Button.

2. Select **Print Preview**.

   The document is shown in Preview mode. Notice that the Ribbon changes to display only the Print Preview tab.

   Tip: Use the commands on the Print Preview tab to adjust print and page setup settings. Click the **Zoom** button to enlarge the worksheet.

3. Click the **Close Print Preview** button.

   Tip: You can print directly from the Print Preview window by clicking the Print button in the Print group on the Print Preview tab.

   Other Ways to Preview a Worksheet: New in Excel 2007, you can click the **Page Layout View** button on the Status Bar to change views and get a better idea of how the worksheet will be laid out when printed.

Quick Print a worksheet

Quick printing a worksheet bypasses the Print dialog box and sends the worksheet directly to the printer.

1. Click the **Office Button**, point to the **Print** arrow and select **Quick Print**.

Print a worksheet

1. Click the **Office Button** and select **Print**.

   The Print dialog box appears. Specify printing options such as the number of copies to print.

   Other Ways to Print: Press **<Ctrl>** + **<P>**.

2. Specify printing options, then click **OK**.

Exercise Notes

- **Exercise File:** Sales2-8 xlsx.
- **Exercise:** Preview the Sales2-8 worksheet. Zoom in on the previewed worksheet. Close the Preview mode. Print the worksheet.

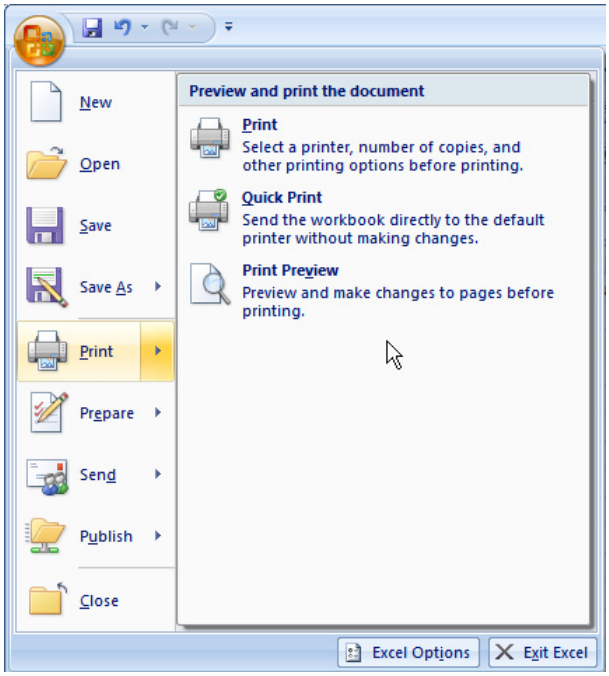


Figure 2-19: A list of print options.

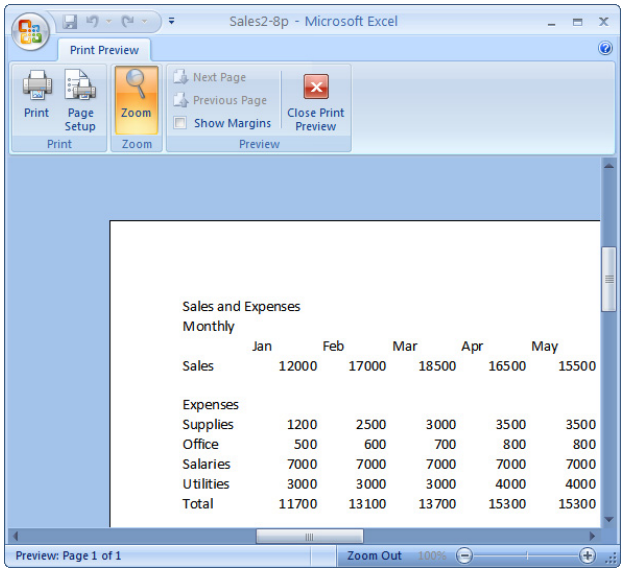


Figure 2-20: A worksheet shown in print preview.

Closing a Workbook

When you're done working on a workbook, you need to close it.

1. Click the **Office Button** and select **Close**.

The workbook closes. You can access the file again by opening it later.

Other Ways to Close a Workbook:
Press **<Ctrl>** + **<W>**. Or, click the **Close** button in the upper right corner of the workbook window (not the one even farther up in the corner in the title bar).

Tip: If you have multiple workbooks open, clicking the active workbook's **Close** button only closes that one workbook. The other workbooks remain open in the window until you click their close buttons as well.

Trap: The close button located in the title bar closes only the active workbook if there is more than workbook open. However, if there is only one open, it closes it *and* causes you to exit the Excel program entirely.

Exercise Notes

- **Exercise File:** Any open workbook.
- **Exercise:** Close all open workbooks.

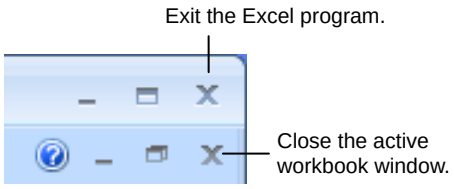


Figure 2-21: The Close button.

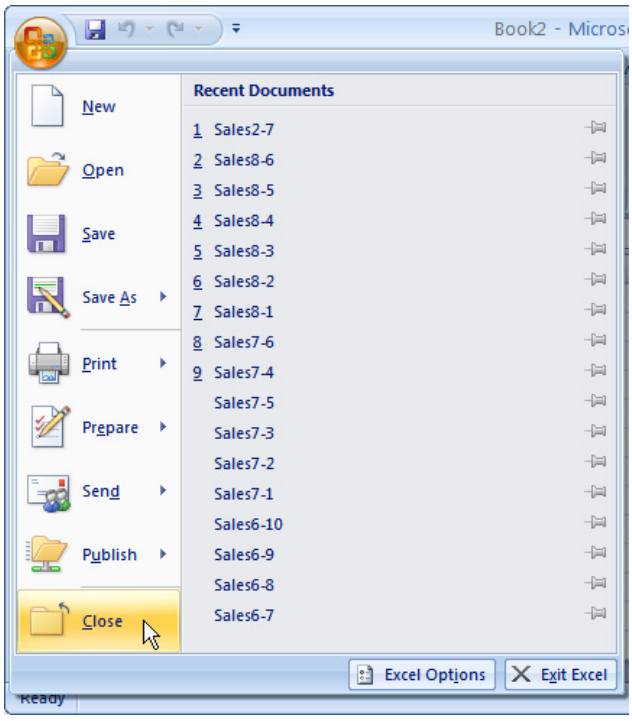


Figure 2-22: Closing a workbook.

3

Editing a Worksheet

Editing Cell Contents 40
- Edit cell contents 40
- Replace cell contents 40
- Clear cell contents 40

Cutting, Copying, and Pasting Cells 41

Moving and Copying Cells Using the Mouse.. 43

Using the Office Clipboard 44

Using the Paste Special Command 45

Checking Your Spelling 46

Inserting Cells, Rows, and Columns 48

Deleting Cells, Rows, and Columns 49

Using Find and Replace 50
- Search options 51

Using Cell Comments 52
- Insert a comment 52
- View a comment 52
- Edit a comment 52
- Delete a comment 53

Tracking Changes 54
- Track changes 54
- Accept/reject changes 54

This chapter will show you how to edit your Excel worksheets. You'll learn how to edit cell contents; cut, copy and paste information; insert and delete columns and rows; undo any mistakes you might make; and even correct your spelling errors.

Using Exercise Files

This chapter suggests exercises to practice the topic of each lesson. There are two ways you may follow along with the exercise files:

- Open the exercise file for a lesson, perform the lesson exercise, and close the exercise file.
- Open the exercise file for a lesson, perform the lesson exercise, and keep the file open to perform the remaining lesson exercises for the chapter.

The exercises are written so that you may "build upon them", meaning the exercises in a chapter can be performed in succession from the first lesson to the last.

Editing Cell Contents

Once you've entered data into a cell, you can edit, clear, or replace those cell contents.

Edit cell contents

1. Double-click the cell you want to edit.

   The cell is in edit mode.

   Other Ways to Enter Edit Mode:
   Select the cell and press **<F2>**.

2. Edit the contents of the cell, in the cell.

   Use the arrow keys and the <Delete> and <Backspace> keys to help you edit the cell contents.

3. Press **<Enter>**.

   Other Ways to Edit Cell Contents:
   Select the cell, then edit the cell's contents in the Formula Bar and. Press **<Enter>** or click the **Enter** button on the Formula bar.

Replace cell contents

1. Select the cell.

2. Type new text or data.

3. Press **<Enter>**.

   The newly typed information replaces the previous cell contents.

Clear cell contents

1. Select the cell.

2. Press **<Delete>**.

   Other Ways to Clear Cell Contents:
   Under the Home tab on the Ribbon, click the **Clear** button in the Editing group.

   Tip: Note that this clears the cell contents, not the actual cell.

Exercise Notes

- **Exercise File:** Sales3-1 xlsx
- **Exercise:** Edit cell A1 so it reads "Sales & Expenses," and cell A6 so it reads "Total Exp.," then replace the contents of cell A9 with "Wages". Clear cell A2.

	A	B	C
1	Sales & Expenses		
2	Monthly		
3		Jan	Feb
4	Sales	12000	17000

Figure 3-1: Editing the contents of a cell.

Cutting, Copying, and Pasting Cells

You can move information around in an Excel worksheet by cutting or copying and then pasting the cell data in a new place. You can work with one cell at a time or ranges of cells.

Tips

✓ You may cut, copy, and paste any item in a worksheet, such as clip art or a picture, in addition to cell data.

Copy cells

When you *copy* a cell, the selected cell data remains in its original location and is added to the Clipboard.

1. Select the cell(s) you want to copy.

   Tip: If you want to cut or copy only selected parts of a cell's contents, double-click the cell to display a cursor and select the characters you want to cut.

2. Click the **Home** tab on the Ribbon and click the **Copy** button in the Clipboard group.

   Other Ways to Copy Cells:
   Press **<Ctrl>** + **<C>**. Or, right-click the selection and select **Copy** from the contextual menu.

Cut cells

When you *cut* a cell, it is removed from its original location and placed in a temporary storage area called the Clipboard.

1. Select the cell(s) you want to cut.

2. Click the **Home** tab on the Ribbon and click the **Cut** button in the Clipboard group.

   A line of marching ants appears around the selected cells and the message "Select destination and press ENTER or choose Paste" appears on the status bar.

   Other Ways to Cut Cells:
   Press **<Ctrl>** + **<X>**. Or, right-click the selection and select **Cut** from the contextual menu.

   Tip: When you cut cells, you have a shortcut to pasting them: select the destination and press **<Enter>**.

Exercise Notes

- **Exercise File:** Sales3-2 xlsx
- **Exercise:** Copy cell A11 and paste it in cell A13. Then cut cell A6 and paste it over the contents in cell A11.

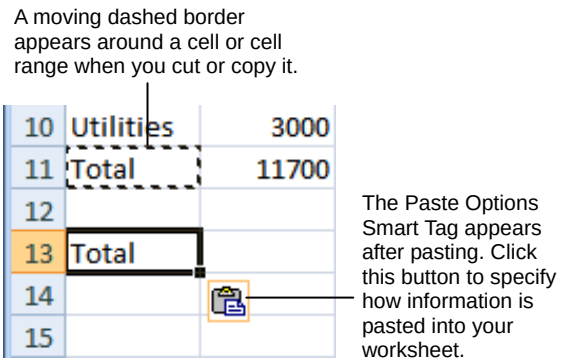

A moving dashed border appears around a cell or cell range when you cut or copy it.
10 Utilities 3000
11 Total 11700
12
13 Total
14
15
The Paste Options Smart Tag appears after pasting. Click this button to specify how information is pasted into your worksheet.

Figure 3-2: Copying and pasting a cell.

Paste cells

After cutting or copying, select a new cell and *paste* the item that you last cut or copied into the worksheet.

1. Select the cell where you want to paste the copied or cut cell(s).

   When you select a destination to paste a range of cells you only have to designate the first cell where you want to paste the cell range.

2. Click the **Home** tab on the Ribbon and click the **Paste** button in the Clipboard group.

   The cut or copied cell data is pasted in the new location.

   Other Ways to Paste Cells:
   Press **<Ctrl>** + **<V>**. Or, right-click where you want to paste and select **Paste** from the contextual menu.

3. Press **<Enter>**.

   The line of marching ants around the selected cells disappears.

Tips

- ✓ After pasting, a Paste Options Smart Tag may appear. Click this button to specify how information is pasted into your worksheet.
- ✓ You may specify what you want to paste by using the Paste Special command. Click the **Paste** button list arrow in the Clipboard group and select **Paste Special** from the list. Choose a paste option in the Paste Special dialog box.
- ✓ To collect and paste multiple items, open the Office Clipboard.

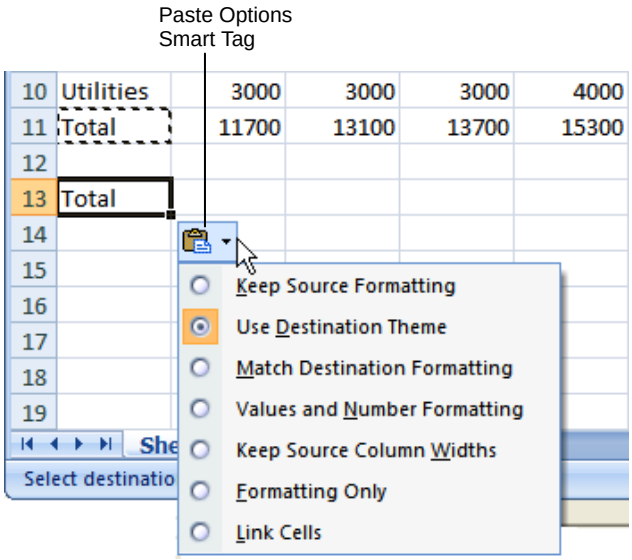


Figure 3-3: The Paste Options Smart Tag offers a list of pasting options.

Moving and Copying Cells Using the Mouse

Using the mouse to move and copy cells is even faster and more convenient than using the cut, copy and paste commands.

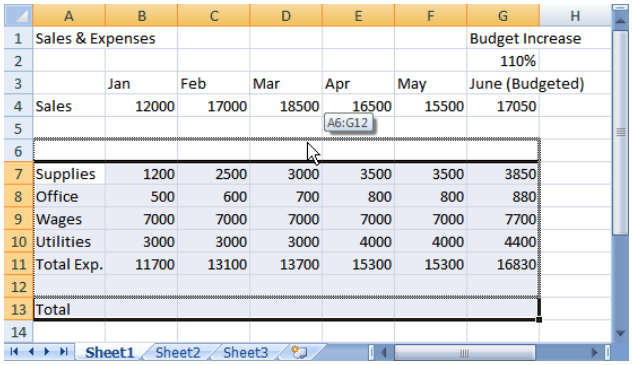
1. Select the cell(s) you want to move.
2. Point to the border of the cell or cell range.
3. Click and hold the mouse button.
4. Drag the pointer to where you want to move the selected cell(s) and then release the mouse button.

Tips

✓ Press and hold the **<Ctrl>** key while clicking and dragging to copy the selection.

Exercise Notes

- **Exercise File:** Sales3-3 xlsx
- **Exercise:** Move the cell range A7:G13 up one row.



The screen tip previews the address of the cell range as it is moved.

Figure 3-4: Moving a cell range using the mouse.

Using the Office Clipboard

If you do a lot of cutting, copying, and pasting you will appreciate the Office Clipboard, which collects and pastes multiple items from Excel and other Office programs.

1. Click the **Home** tab on the Ribbon and click the **Dialog Box Launcher** in the Clipboard group.

   The Clipboard task pane appears along the left side of the window.

2. Cut and copy items as you normally would.

   The Clipboard can hold 24 items at a time. The icon next to each item indicates the program the item is from. See Table 3-1: Icons in the Clipboard Task Pane for examples of some common icons.

3. Click where you want to paste an item from the Clipboard.

4. Click the item in the Clipboard.

Tips

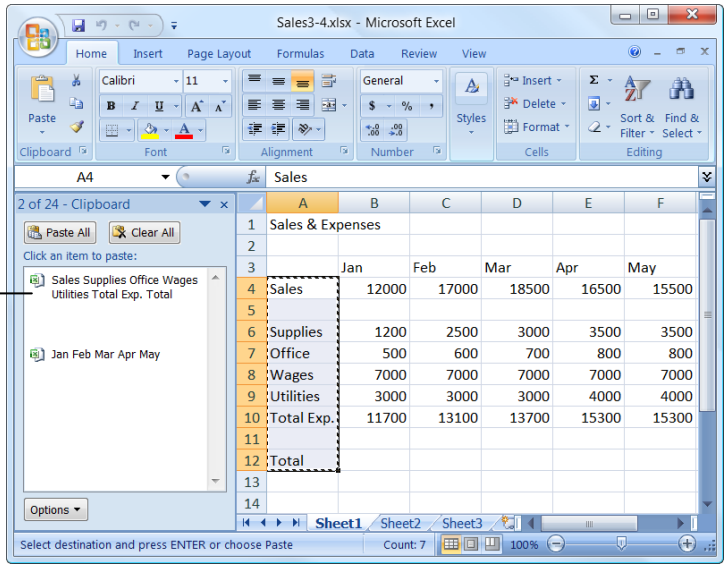
- ✓ While the Clipboard is displayed, each cut or copied item is saved to the Clipboard. If the Clipboard is not displayed, the last cut or copied item is replaced.
- ✓ As long as the Clipboard is open, it collects items that are cut or copied from all Office programs.
- ✓ To remove an item from the Clipboard, click the item's list arrow and select **Delete**. Click the **Clear All** button in the task pane to remove all items from the Clipboard.
- ✓ Click the **Options** button near the bottom of the task pane to control how the Clipboard operates.

Exercise Notes

- **Exercise File:** Sales3-4 xlsx
- **Exercise:** Display the Clipboard. Copy the cell range B3:F3, then copy the cell range A4:A12. In cell B14, paste the copied B3:F3 range from the Clipboard. Close the Clipboard. Clear the contents of cells B14:F14.

Table 3-1: Icons in the Clipboard Task Pane

	Content cut or copied from a Microsoft Excel workbook.
	Content cut or copied from a Microsoft PowerPoint presentation.
	Content cut or copied from a Microsoft Word document.
	Web page contents cut or copied from a Web browser.
	Cut or copied graphic object.
	Content cut or copied from a program other than Microsoft Office.



Copied and cut items appear in the Clipboard task pane.

Figure 3-5: A worksheet with the Clipboard task pane displayed.

Using the Paste Special Command

Excel's Paste Special command lets you specify exactly what you want to copy and paste. For example, you can use the Paste Special command to replace the formula with its calculated value.

1. Copy or cut an item as you normally would.
2. Click the cell where you want to paste the item.
3. Click the **Home** tab and click the **Paste** button list arrow in the Clipboard group.

   Use one of the paste special options that appears in the list, or open the Paste Special dialog box.
4. Select **Paste Special**.

   The Paste Special dialog box appears.
5. Select a paste option and click **OK**.
6. Press **<Enter>**.

Other Ways to Paste Special:
Paste as you normally would. Click the **Paste Options Smart Tag** that appears next to the pasted item and select a paste option from the list.

Exercise Notes

- **Exercise File:** Sales3-5 xlsx
- **Exercise:** Use the paste special command to replace the formulas in cell range G4:G9 with their calculated values. Type "Net Inc." in cell A12 and enter the formula =B4-B10 in B12. Copy cell B12 and paste the formula to C12:G12.

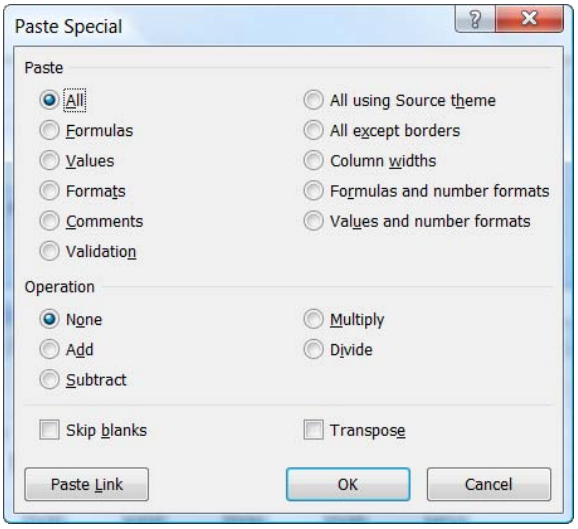


Figure 3-6: The Paste Special dialog box.

Table 3-2: Paste Special Options

Paste Option	Description
All	Pastes all cell contents and formatting. Same as the Paste command.
Formulas	Pastes only the formulas as entered in the formula bar.
Values	Pastes only the values as displayed in the cells.
Formats	Pastes only cell formatting. Same as using the Format Painter button.
Comments	Pastes only comments attached to the cell.
Validation	Pastes data validation rules for the copied cells to the paste area.
All using Source theme	Pastes all cell contents and formatting, including the theme, if one was applied to the source data.
All except borders	Pastes all cell contents and formatting applied to the copied cell except borders.
Column widths	Pastes only the width of the source cell's column to the destination cell's column.
Formulas and number formats	Pastes only the formulas and number formats.
Values and number formats	Pastes only the values and number formats.
Operation (several options)	Specifies which mathematical operation, if any, you want to apply to the copied data.
Skip blanks	Avoids replacing values in your paste area when blank cells occur in the copy area.
Transpose	Changes columns of copied data to rows, and vice versa.
Paste Link	Links the pasted data to the source data by pasting a formula reference to the source data.

Checking Your Spelling

You can use Excel's spell checker to find and correct spelling errors in your worksheets. To check the spelling of a worksheet all at once, use the Spelling dialog box.

Exercise Notes

- **Exercise File:** Sales3-6 xlsx
- **Exercise:** Run a spell check and correct spelling for the entire worksheet.

1. Click the **Review** tab on the Ribbon and click the **Spelling** button in the Proofing group.

Excel begins checking spelling with the active cell.

Tip: Depending on which cell is active when you start the spell check, you may see a dialog box that asks you if you want to start your spell check from the beginning of the sheet. Select **Yes**.

Other Ways to Check Spelling:
Press **<F7>**.

If Excel finds an error, the Spelling dialog box appears with the misspelling in the "Not in Dictionary" text box. You have several options to choose from when the Spelling dialog box opens:

- **Ignore Once:** Accepts the spelling and moves on to the next spelling error.
- **Ignore All:** Accepts the spelling and ignores all future occurrences of the word in the worksheet.
- **Add to Dictionary:** If a word is not recognized in the Microsoft Office Dictionary, it is marked as misspelled. This command adds the word to the dictionary so it is recognized in the future.
- **Change:** Changes the spelling of the word to the spelling that is selected in the Suggestions list.
- **Change All:** Changes all occurrences of the word in the worksheet to the selected spelling.

  Trap: Exercise caution when using this command—you might end up changing something you didn't want to change.

- **AutoCorrect:** Changes the spelling of the word to the spelling that is selected in the Suggestions list, and adds the misspelled word to the AutoCorrect list so that Excel will automatically fix it whenever you type it in the future.

2. If the word is spelled incorrectly, select the correct spelling from the Suggestions list. Then click **Change**, **Change All**, or **AutoCorrect**. If the word is spelled correctly, click **Ignore Once**, **Ignore All**, **Add to Dictionary**.

Excel applies the command and moves on to the next misspelling.

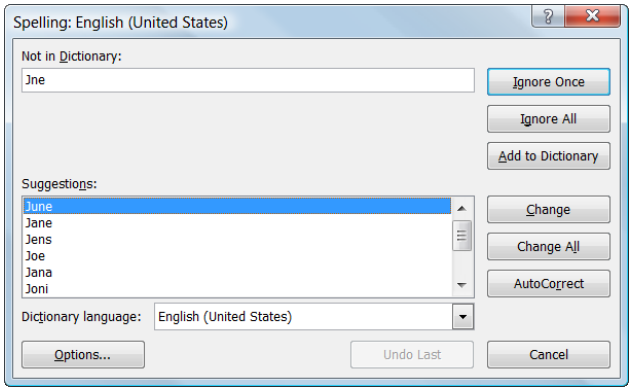


Figure 3-7: The Spelling dialog box.

Once Excel has finished checking your worksheet for spelling errors, a dialog box appears, telling you the spelling check is complete.

3. Click **OK**.

The dialog box closes.

Tips

- ✓ Excel cannot catch spelling errors that occur because of misuse. For example, if you entered the word "through" when you meant to type "threw," Excel wouldn't catch it because "through" is a correctly spelled word.
- ✓ The AutoCorrect feature automatically corrects commonly misspelled words for you as you type.

Inserting Cells, Rows, and Columns

While working on a worksheet, you may need to insert new cells, columns, or rows. When you insert cells, the existing cells shift to make room for the new cells.

Insert cells

1. Select the cell or cell range where you want to insert cells.

   The number of cells you select is the number of cells to be inserted.

2. Click the **Home** tab on the Ribbon and click the **Insert** list arrow in the Cells group. Select **Insert Cells**.

   The Insert dialog box appears. Here you can tell Excel how you want to move the existing cells to make room for the new ones by selecting "Shift cells right" or "Shift cells down."

   You can also select "Entire row" or "Entire column" in the Insert dialog box to insert an entire row or column and not just a cell or cells.

3. Select the insert option you want to use and click **OK**.

   The cell(s) are inserted and the existing cells shift.

   Other Ways to Insert Cells:
   Right-click the selected cell(s) and select **Insert** from the contextual menu. Select an option and click **OK**.

Insert rows or columns

1. Select the **row heading** below or **column heading** to the right of where you want to insert the new row or column.

   The number of row or column headings you select is the number of row or columns that will be inserted.

2. Click the **Home** tab on the Ribbon and click the **Insert** list arrow in the Cells group. Select **Insert Rows** or **Insert Columns**.

   The row or column is inserted. Existing rows are shifted downward, while existing columns are shifted to the right.

   Other Ways to Insert Rows or Columns:
   Right-click a row or column heading and select **Insert** from the contextual menu.

Exercise Notes

- **Exercise File:** Sales3-7 xlsx
- **Exercise:** Select cell A1, insert a new cell and shift the existing cells to the right. Insert a new row between rows 9 and 10.

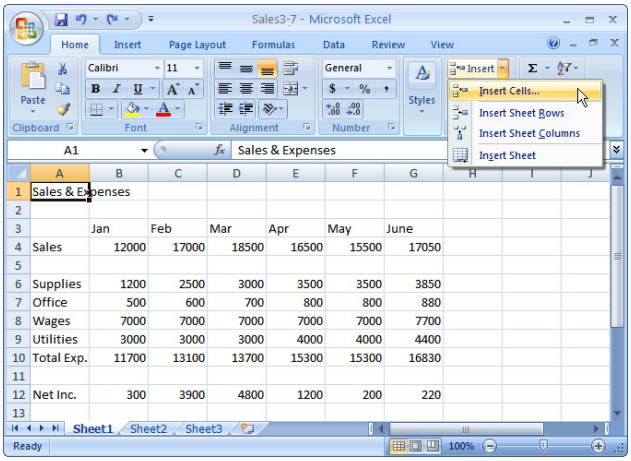


Figure 3-8: Inserting a cell in a worksheet.

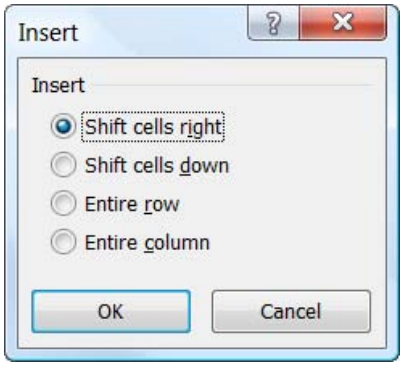


Figure 3-9: The Insert dialog box.

Deleting Cells, Rows, and Columns

You can quickly delete existing cells, columns, or rows from a worksheet. When you delete cells the existing cells shift to fill the space left by the deletion.

Exercise Notes

- **Exercise File:** Sales3-8 xlsx
- **Exercise:** Delete cell A1 and shift cells to the left. Delete row 10.

Delete cells

1. Select the cell(s) you want to delete.

2. Click the **Home** tab on the Ribbon and click the **Delete** list arrow in the Cells group. Select **Delete Cells**.

   The Delete dialog box appears. Here you can tell Excel how you want to move the remaining cells to cover the hole left by the deleted cell(s) by selecting "Shift cells left" or "Shift cells up."

   Tip: You can also select **Entire row** or **Entire column** in the Delete dialog box to delete an entire row or column.

3. Select an option and click **OK**.

   The cell(s) are deleted and the remaining cells are shifted.

   Trap: Pressing the <Delete> key only clears a cell's contents, it doesn't delete the actual cell.

   Other Ways to Delete Cells:
   Right-click the selection and select **Delete** from the contextual menu. Select an option and click **OK**.

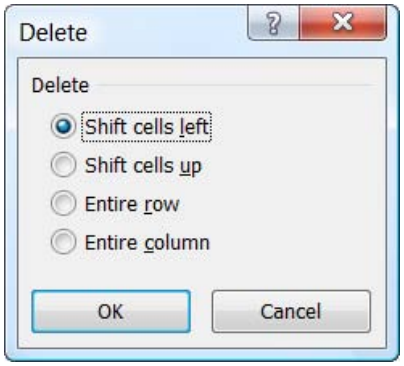


Figure 3-10: The Delete dialog box.

Delete rows or columns

1. Select the **row** or **column heading(s)** you want to delete.

2. Click the **Home** tab on the Ribbon and click the **Delete** button in the Cells group.

   The rows or columns are deleted. Remaining rows are shifted up, while remaining columns are shifted to the left.

   Other Ways to Delete Rows or Columns:
   Select the column or row heading(s) you want to delete, right-click any of them, and select **Delete** from the contextual menu. Or, click the **Delete** list arrow and select **Delete Sheet Rows** or **Delete Sheet Columns**. The row or column of the active cell is deleted.

Using Find and Replace

Don't waste time scanning your worksheet for labels and values that you want to replace with something new: Excel's find and replace commands can do this for you with just a few clicks of your mouse.

Exercise Notes

- **Exercise File:** Sales3-9 xlsx
- **Exercise:** Use the Replace feature to find and replace all instances of "Sales" with "Income" in the worksheet.

Find

The Find feature makes it very easy to find specific words and values in a worksheet.

1. Click the **Home** tab on the Ribbon and click the **Find & Select** button in the Editing group. Select **Find** from the list.

   The Find tab of the Find and Replace dialog box appears.

   Other Ways to Find Text:
   Press **<Ctrl>** + **<F>**.

2. Type the text or value you want to find in the "Find what" text box.

3. Click the **Find Next** button.

   Excel jumps to the first occurrence of the word, phrase, or value that you entered.

4. Click the **Find Next** button again to move on to other occurrences. When you're finished, click **Close**.

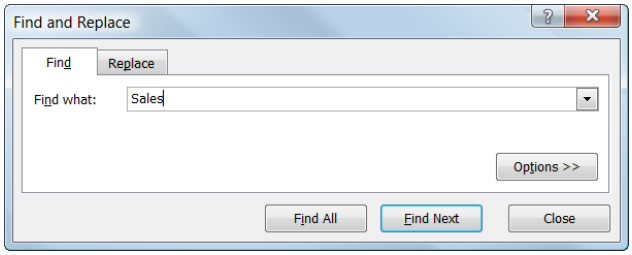


Figure 3-11: The Find tab of the Find and Replace dialog box.

Replace

Replace finds specific words and values, and then replaces them with something else.

1. Click the **Home** tab on the Ribbon and click the **Find & Select** button in the Editing group. Select **Replace** from the list.

   The Replace tab of the Find and Replace dialog box appears.

   Other Ways to Replace Text:
   Press **<Ctrl>** + **<H>**.

2. Type the text or value you want replace in the "Find what" text box.

3. Type the replacement text or value in the "Replace with" text box.

4. Click the **Find Next** button.

   Excel jumps to the first occurrence of the word, phrase, or value in the "Find what" box.

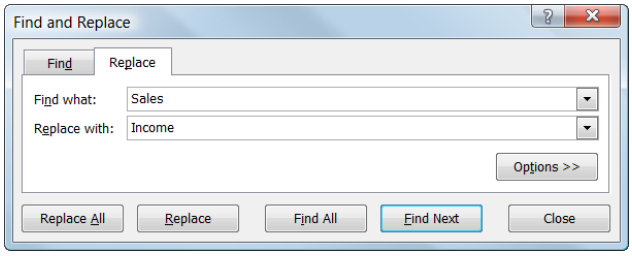


Figure 3-12: The Replace tab of the Find and Replace dialog box.

5. Choose how you want to replace the text:
   - **Replace:** Click to replace the current item.
   - **Replace All:** Click to replace each item found in the document. Use this command with caution: you might replace something you didn't want to replace.
6. Click **Close**.

Search options

Use Excel's search options to change how Excel searches in the document.

1. Click the **More** button in the Find and Replace dialog box to specify how to search for text.

   Table 3-3: Find and Replace Search Options describes the Search Options available under the Find and Replace tabs.

   Trap: If you specify Search Options, make sure to turn them off when you are finished. Otherwise, subsequent find or replace commands will use the same search options.

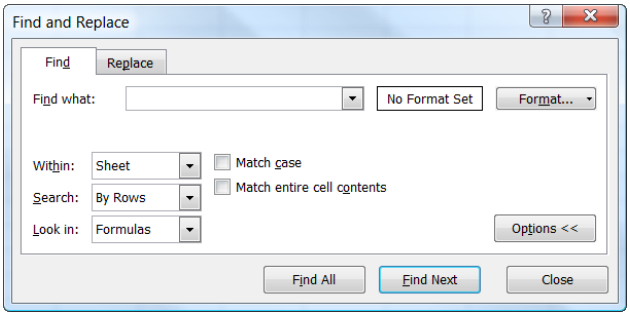


Figure 3-13: The Find and Replace dialog box with search options displayed.

Table 3-3: Find and Replace Search Options

Within	Choose whether to search within just the current sheet or the entire workbook.
Search	Search by rows (left to right, then top to bottom) or columns (top to bottom, then left to right).
Look in	Specify which kinds of data you want to search in, such as formulas, values, or comments.
Match case	Searches exactly as text is typed in the text box.
Match entire cell contents	Searches only for cells that match the contents in the text box entirely. Parts of phrases or words are not included.
Format button	Specify formatting characteristics you want to find attached to the text in the Find what text box.

Using Cell Comments

Sometimes you may need to add notes to a workbook to document complicated formulas or questionable values, or to leave a comment for another user. Excel's cell comments command helps you document your worksheets and make them easier to understand. Think of cell comments as Post-It Notes that you can attach to any cell. Cell comments appear whenever you point at the cell they're attached to.

Insert a comment

1. Click the cell you want to attach a comment to.
2. Click the **Review** tab on the Ribbon and click the **New Comment** button in the Comments group.
3. Type a comment.
4. Click outside the comment area when you're finished.

Other Ways to Insert a Comment:
Right-click the cell you want to attach a comment to and select **New Comment** from the contextual menu. Type a comment.

View a comment

1. Point to the red triangle-shaped comment marker that's located in the cell with the comment.

Tip: To display a comment all the time, click the cell with the comment, then click the **Review** tab on the Ribbon and click the **Show/Hide Comments** button in the Comments group. Or, click the **Show All Comments** button in the Comments group to display all the comments in a worksheet at once.

Edit a comment

1. Click the cell that contains the comment you want to edit.
2. Click the **Review** tab on the Ribbon and click the **Edit Comment** button in the Comments group.
3. Edit the comment.

   You can change the size of a comment text box by clicking and dragging one of the eight sizing handles that surrounds the comment.

Exercise Notes

- **Exercise File:** Sales3-10 xlsx
- **Exercise:** Add a comment to cell B4 that reads "Why is income so low this month?" Then delete the comment.

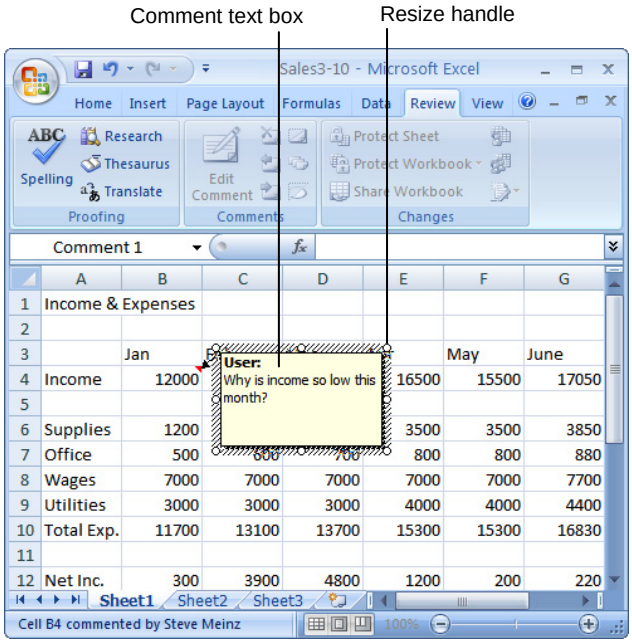


Figure 3-14: Entering a cell comment.

4. Click outside the comment area when you're finished.

   Other Ways to Edit a Comment:
   Right-click the cell with the comment you want to edit and select **Edit Comment** from the contextual menu. Edit the comment.

Delete a comment

1. Click the cell that contains the comment you want to delete.

2. Click the **Review** tab on the Ribbon and click the **Delete** button in the Comments group.

   Other Ways to Delete a Comment:
   Right-click the cell you want to delete and select **Delete Comment** from the contextual menu.

Tracking Changes

You can track changes made to a workbook, allowing easier collaboration with other users. When you choose to track changes, Excel also shares your workbook.

Track changes

1. Click the **Review** tab on the Ribbon, click the **Track Changes** button in the Changes group, and select **Highlight Changes**.

   The Highlight Changes dialog box appears.

2. Click the **Track changes while editing** check box.

3. Click the highlighting options you want to use and click **OK**.

   Another dialog box appears, confirming that the workbook will be saved, and will now become a shared workbook.

4. Click **OK**.

5. Make changes to the shared workbook.

   After you make a change, a cell comment appears in the affected cell, describing the change that was made and who made it.

Accept/reject changes

Once changes have been made and tracked in a workbook, decide whether to accept or reject those changes.

1. Click the **Review** tab on the Ribbon, click the **Track Changes** button in the Changes group, and select **Accept/Reject Changes**.

   A message appears, telling you that the workbook will be saved.

2. Click **OK**.

   The Select Changes to Accept or Reject dialog box appears. Use the commands to tell Excel which changes you want to accept or reject.

3. Click **OK**.

   The Accept or Reject Changes dialog box appears, displaying the changes that have been made to the document.

4. Click the **Accept** or **Reject** buttons as each change is highlighted.

Exercise

- **Exercise File:** Sales3-11 xlsx
- **Exercise:** Turn on track changes while editing. Change cell A1 to “Revenue” and change B4 to “4000”. Accept both of the changes.

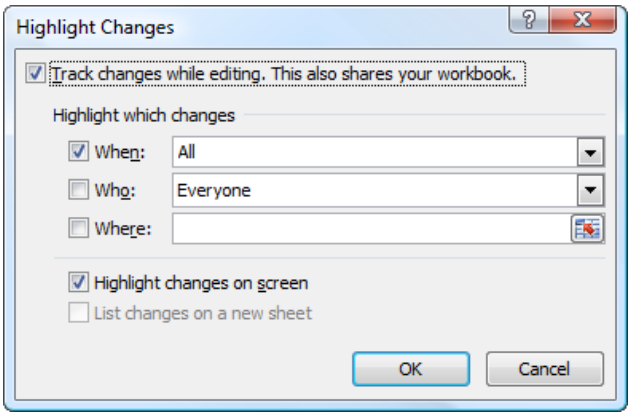


Figure 3-15: The Highlight Changes dialog box.

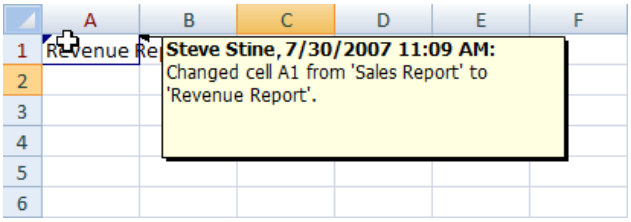


Figure 3-16: A tracked comment in Excel.

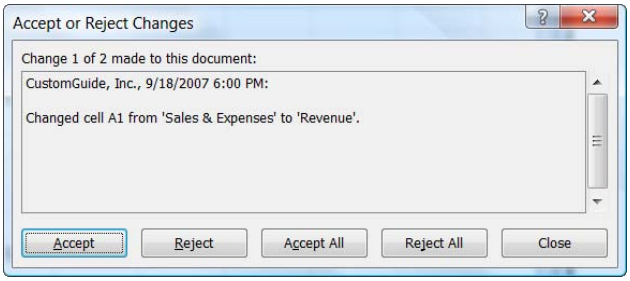


Figure 3-17: The Accept or Reject Changes dialog box.

4

Formatting a Worksheet

Formatting Labels 56

Formatting Values 57

Adjusting Row Height and Column Width 58
Adjust column width 58
Adjust row height 58
AutoFit columns or rows 58

Working with Cell Alignment 59

Adding Cell Borders, Background Colors and Patterns 60

Using the Format Painter 62

Using Cell Styles 63
Apply a cell style 63
Remove a cell style 63
Modify or duplicate a cell style 63
Create a new cell style 64

Using Document Themes 65
Apply a document theme 65
Customize a document theme 65
Create new theme colors and fonts 66
Save a new document theme 66

Applying Conditional Formatting 67
Apply Highlight Cell Rules and Top/Bottom Rules 67
Apply Data Bars, Color Scales and Icon Sets 68
Creating and Managing Conditional Formatting Rules 69
Create a new rule 69
Manage rules 69
Clear rules 70

Finding and Replacing Formatting 71

You probably have a few colleagues that dazzle everyone at meetings with their sharp-looking worksheets that use colorful fonts and borders.

This chapter explains how to format a worksheet to make it more visually attractive and easier to read.

You will learn how to change the appearance, size, and color of text and how to align text inside a cell. You will learn how to add borders and shading and how to use cell styles, as well as many other tools that will help your worksheets look more organized and professional.

Using Exercise Files

This chapter suggests exercises to practice the topic of each lesson. There are two ways you may follow along with the exercise files:

- Open the exercise file for a lesson, perform the lesson exercise, and close the exercise file.
- Open the exercise file for a lesson, perform the lesson exercise, and keep the file open to perform the remaining lesson exercises for the chapter.

The exercises are written so that you may "build upon them", meaning the exercises in a chapter can be performed in succession from the first lesson to the last.

Formatting Labels

You can emphasize text in a worksheet by making the text darker and heavier (**bold**), slanted (*italics*), or in a different typeface (font). The Font group on the Home tab makes it easy to apply character formatting.

1. Click the cell(s) with the label you want to format.

2. Click the **Home** tab on the Ribbon and click a formatting button in the Font group.

   The label text is formatted.

   Other Ways to Format Labels:
   Right-click the cell(s) you want to format. Click a formatting button on the Mini Toolbar. Or, right-click the cell(s) you want to format and select **Format Cells** from the contextual menu or click the **Dialog Box Launcher** in the Font group. Select formatting options on the Font tab in the Format Cells dialog box.

Tips

- ✓ To use different font formats for different characters within the same cell, make the formatting changes while in edit mode.
- ✓ The formatting buttons in the Font group, such as Font Color and Font Size, are not just for formatting labels—you can use them to format values as well.

Exercise Notes

- **Exercise File:** Sales4-1 xlsx
- **Exercise:** Format cell A1 with 14 pt Cambria font, then format the cell ranges B3:G3 and A4:A12 with bold Cambria font.

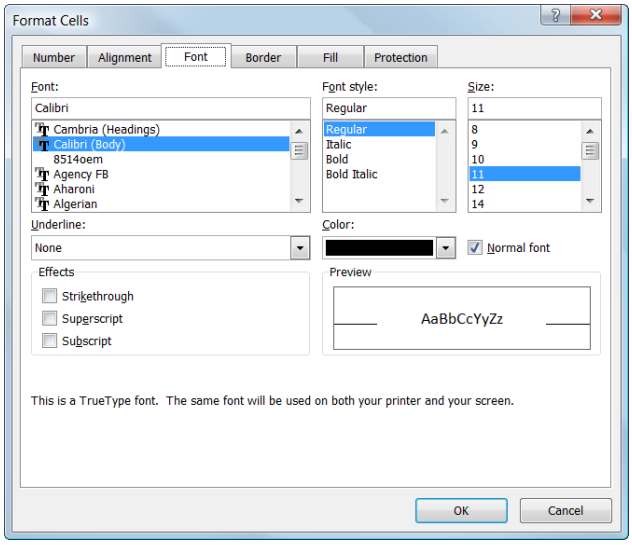


Figure 4-1: The Format Cells dialog box

Table 4-1: Font Formatting Buttons

B **Bold**	Make text **darker and heavier**.
I **Italic**	Make text *slant*.
U **Underline list arrow**	Add a line or double line under text.
Calibri **Font list arrow**	Select a different font.
11 **Font Size list arrow**	Adjust font size.
A A **Increase/Decrease Font Size**	Adjust font size by one increment, either larger or smaller.
A **Font Color list arrow**	Adjust text color.

Formatting Values

Applying number formatting changes how values are displayed—it doesn't change the actual information. Excel is often smart enough to apply some number formatting automatically. For example, if you use a dollar sign to indicate currency, such as $548.67, Excel will automatically apply the currency number format for you.

1. Click the cell(s) with the value(s) you want to format.

2. Click the **Home** tab on the Ribbon and click a formatting button in the Number group.

   The values are formatted. See Table 4-2: Number Formatting Buttons for more information on buttons in the Number group.

   Other Ways to Format Values:
   Right-click the cell(s) you want to format. Click a formatting button on the Mini Toolbar. Or, right-click the cell(s) you want to format and select **Format Cells** from the contextual menu or click the Number group's **Dialog Box Launcher**. Select formatting options on the Number tab in the Format Cells dialog box.

Tips

- ✓ Create custom number formats in the Format Cells dialog box by selecting the Custom category, selecting a number format code in the list, and editing it in the Type text box. Watch the sample area to see how the custom number format you create will be displayed.
- ✓ The formatting buttons in the Font group, such as Font Color and Font Size, are not just for formatting labels—you can use them to format values as well.

Exercise Notes

- **Exercise File:** Sales4-2 xlsx
- **Exercise:** Format the cell range B4:G12 with the Accounting number format and decrease the decimal places so no decimals are shown.
  Select the range B6:G10 and display the Format Cells dialog box. Select the Accounting category and remove the dollar symbols from the range (select None as the symbol).

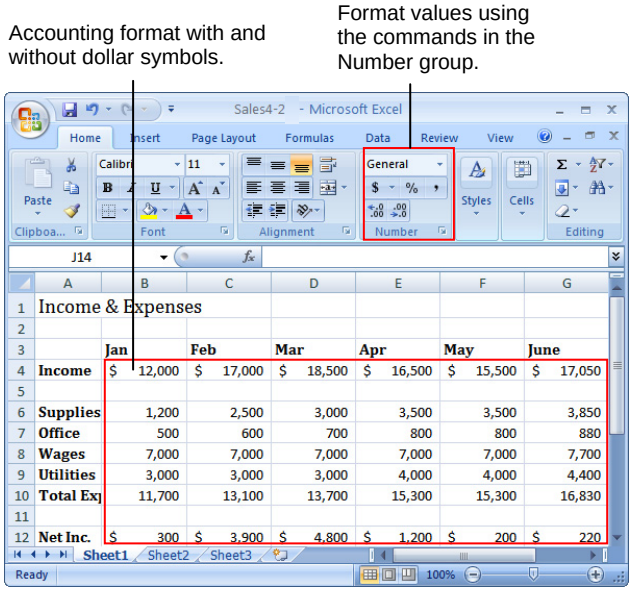

Accounting format with and without dollar symbols.
Format values using the commands in the Number group.
Sales4-2 - Microsoft Excel
Income & Expenses
Jan Feb Mar Apr May June
Income $ 12,000 $ 17,000 $ 18,500 $ 16,500 $ 15,500 $ 17,050
Supplies 1,200 2,500 3,000 3,500 3,500 3,850
Office 500 600 700 800 800 880
Wages 7,000 7,000 7,000 7,000 7,000 7,700
Utilities 3,000 3,000 3,000 4,000 4,000 4,400
Total Exp 11,700 13,100 13,700 15,300 15,300 16,830
Net Inc. $ 300 $ 3,900 $ 4,800 $ 1,200 $ 200 $ 220
Sheet1 Sheet2 Sheet3
Ready
100%

Figure 4-2: Formatted values.

Table 4-2: Number Formatting Buttons

General **Number Format list arrow**	Select from several number formats—like General, Number, or Time—or click More to see all available formats.
$ **Accounting Number Format**	Apply the Accounting number format, which adds a dollar sign ($) and decimal point.
% **Percent Style**	Apply the Percent format, which converts the value to a percentage and adds a percent symbol (%).
, **Comma Style**	Add a thousands separator.
.0 .00 .00 .0 **Increase/Decrease Decimal**	Increase or decrease the number of decimal points shown.

Adjusting Row Height and Column Width

When you start working on a worksheet, all the rows and columns are the same size. As you enter information into the worksheet, you will quickly discover that some of the columns or rows are not large enough to display the information they contain. This lesson explains how to change the width of a column and the height of a row.

Adjust column width

1. Point to the column header's right border until the pointer changes to a ✢.

2. Click and drag to the left or right to adjust the width.

   A dotted line appears as you drag, showing you where the new column border will be.

   Other Ways to Adjust Column Width: Right-click the column header(s), select **Column Width** from the contextual menu, and enter the column width. Or, select the column header(s), click the **Format** button in the Cells group on the Home tab, select **Width**, and enter column width.

Adjust row height

1. Point to the row header's bottom border until the pointer changes to a ✢.

2. Click and drag up or down to adjust the height.

   A dotted line appears as you drag, showing you where the new row border will be.

   Other Ways to Adjust Row Height: Right-click the row header(s), select **Row Height** from the contextual menu, and enter the row height. Or, select the row header(s), click the **Format** button in the Cells group on the Home tab, select **Height**, and enter the row height.

Tips

✓ As you adjust row or column size, screen tips display the current height or width in points and pixels.

AutoFit columns or rows

The AutoFit feature automatically resizes columns or rows to fit the cell in each column or row that has the widest or tallest contents.

1. Double-click the right border of the column(s) or bottom border of the row(s).

Exercise Notes

- **Exercise File:** Sales4-3 xlsx
- **Exercise:** Adjust the width of column A to 13.00 points and the height of row 1 to 24.00 points. AutoFit columns B through G.

The screen tip displays the width of the column as the size changes.

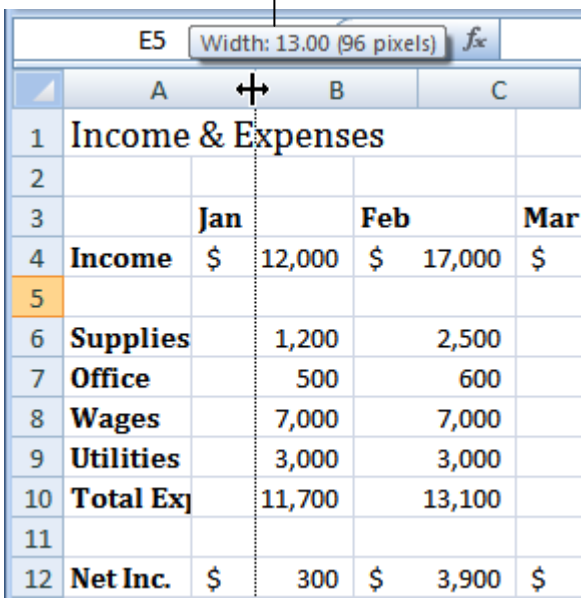


Figure 4-3: Increasing the width of column A.

Working with Cell Alignment

By default, the contents of a cell appear at the bottom of the cell, with values (numbers) aligned to the right and labels (text) aligned to the left. This lesson explains how to control how data is aligned in a cell.

1. Select the cell(s) you want to align.

2. Click the **Home** tab on the Ribbon and click an alignment button in the Alignment group.

The cell contents are realigned. See Table 4-3: Cell Alignment Buttons in the Alignment Group for more information about alignment options in Excel.

Other Ways to Align Cells:
Right-click the cell(s) you want to align. Click an alignment button on the Mini Toolbar. Or, right-click the cell(s) you want to align and select **Format Cells** from the contextual menu or click the **Dialog Box Launcher** in the Alignment group. Select alignment options on the Alignment tab in the Format Cells dialog box.

Exercise Notes

- **Exercise File:** Sales4-4 xlsx
- **Exercise:** Center the labels in cells B3:G3. Merge and center the label "Income & Expenses" across cells A1:G1.

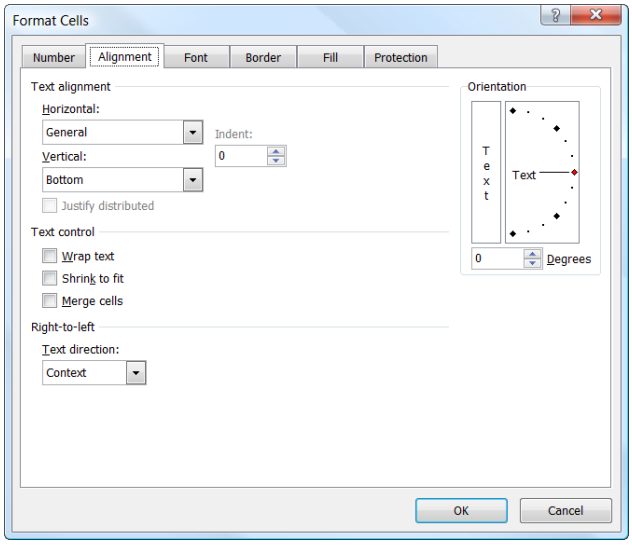


Figure 4-4: The Format Cells dialog box with the Alignment tab displayed.

Table 4-3: Cell Alignment Buttons in the Alignment Group

Top/Middle/Bottom Align	Align cell contents to the top, middle, or bottom of the cell using these three buttons.
Align Left/Center/Right	Align cell contents to the left side, center, or right side of the cell using these three buttons.
Orientation	Align cell contents diagonally or vertically.
Decrease/Increase Indent	Increase or decrease the margin between the cell contents and the cell border with these two buttons.
Wrap Text	Make all cell contents visible by displaying them on multiple lines within the cell (this increases the row's height).
Merge & Center list arrow	Select from a few options for merging cells together and centering cell contents within the merged cells.

Adding Cell Borders, Background Colors and Patterns

Adding cell borders and filling cells with colors and patterns can make them more attractive, organized and easy to read.

Add a cell border

Borders are lines that you can add to the top, bottom, left, or right of cells.

1. Select the cell(s) you want to add the border to.

2. Click the **Home** tab on the Ribbon and click the **Border** list arrow in the Font group.

   A list of borders you can add to the selected cell(s) appears. Use the examples shown next to each border option to guide your decision.

   If the border configuration you want doesn't appear in the list, add one border at a time.

3. Select a border type.

   The border is applied.

   Tip: To remove a border, click the **Border** list arrow in the Font group and select **No Border**.

   Notice that the border option you chose now appears as the selected border type on the Border button. If you want to apply the some border to another cell, just click the Border button.

   Other Ways to Add a Border:
   Right-click the cell(s) you want to add the border to. Click the **Border** list arrow on the Mini Toolbar and select a border. Or, right-click the cell(s) you want to format and select **Format Cells** from the contextual menu or click the **Dialog Box Launcher** in the Font group. Click the **Border** tab in the Format Cells dialog box and select border options.

Add a cell background color

Fill the background of a cell by adding a color or pattern.

1. Select the cell(s) you want to add the color to.

2. Click the **Home** tab on the Ribbon and click the **Fill Color** list arrow in the Font group.

   A list of colors you can add to the selected cell(s) appears.

Exercise Notes

- **Exercise File:** Sales4-5 xlsx
- **Exercise:** Add a bottom border to cells B3:G3 and B9:G9. Add a light blue fill color (Accent 1, Lighter 80%) to the Income & Expenses merged cell (A1), then also apply the 6.25% Gray pattern style (leave the Pattern Color as Automatic).

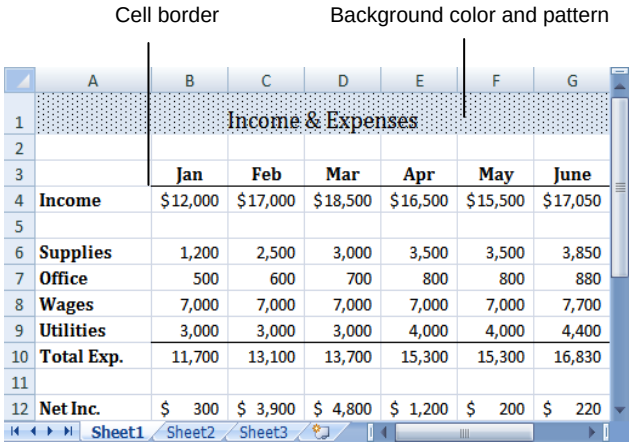


Figure 4-5: Worksheet with cell borders and a background color and pattern applied.

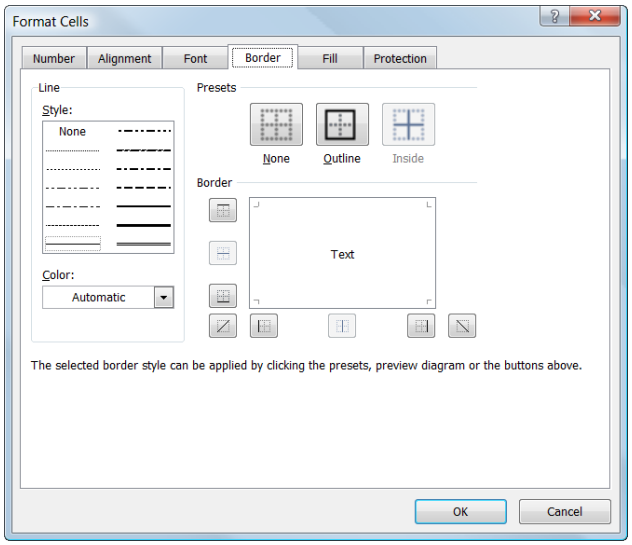


Figure 4-6: The Format Cells dialog box with the Border tab displayed.

3. Select the color you want to use.

   The fill color is applied.

   Notice that the color you chose now appears as the selected color on the button. If you want to apply the shading to another paragraph, just click the button to apply the displayed shading color.

   Other Ways to Apply Background Color:
   Right-click the cell selection and click the **Fill Color** list arrow on the Mini Toolbar. Select a color. Or, right-click the cell(s) you want to format and select **Format Cells** from the contextual menu or click the **Dialog Box Launcher** in the Font group. Click the **Fill** tab in the Format Cells dialog box and select a background color or fill effects.

Add a cell background pattern

1. Right-click the selected cell(s) and select **Format Cells** from the contextual menu.

   The Format Cells dialog box appears.

   Other Ways to Display the Format Cells Dialog Box:
   Click the **Home** tab on the Ribbon and click the **Format** list arrow in the Cells group. Select **Cells**.

2. Click the **Fill** tab.

3. Click the **Pattern Color** list arrow and select a pattern color.

4. Click the **Pattern Style** list arrow and select a pattern style.

5. Click **OK**.

Tips

- ✓ You can use an image as the background of a worksheet. Click the **Page Layout** tab and click the **Background** button. Browse to and select the image you want to use as the worksheet background. Click **Insert**.

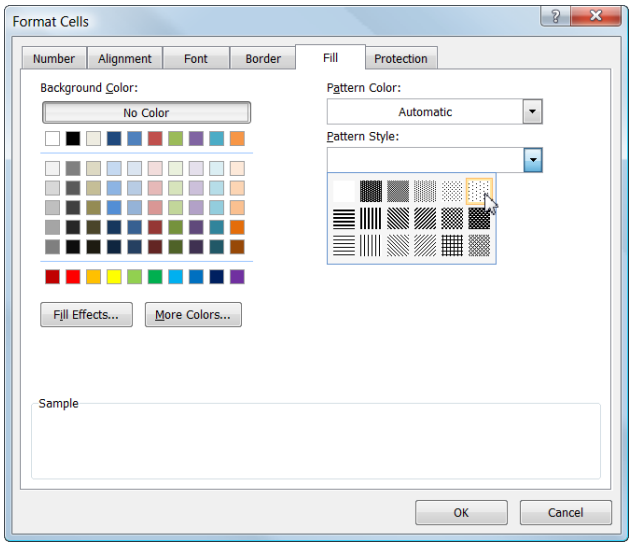


Figure 4-7: Selecting a pattern style on the Fill tab in the Format Cells dialog box.

Using the Format Painter

If you find yourself applying the same cell formatting again and again, then you should familiarize yourself with the Format Painter tool. The Format Painter allows you to copy the formatting of a cell or cell range and apply it elsewhere.

1. Select the cell(s) with the formatting you want to copy.

2. Click the **Home** tab on the Ribbon and click the **Format Painter** button in the Clipboard group.

Other Ways to Access the Format Painter Button:
Select the cell(s) with the formatting options you want to copy, then right-click the selection. Click the **Format Painter** button on the Mini Toolbar.

The mouse pointer changes to indicate it is ready to apply the copied formatting.

Tip: Single-click the **Format Painter** button to apply copied formatting once. Double-click the **Format Painter** button to apply copied formatting as many times as necessary, then click it again or press the **<Esc>** key to deactivate the Format Painter.

3. Click the cell to which you want to apply the copied formatting.

The copied formatting is applied.

Exercise

- **Exercise File:** Sales4-6 xlsx
- **Exercise:** Use the Format Painter to copy the bottom border formatting from the cell range B9:G9 to the range B10:G10.

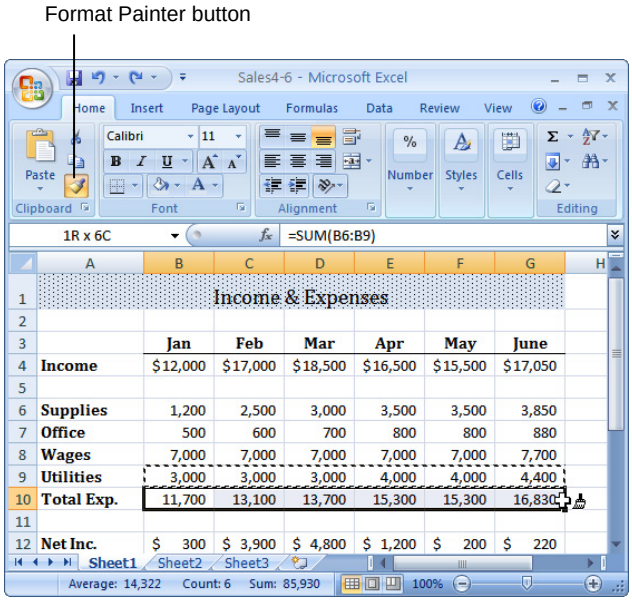


Figure 4-8: Using the Format Painter tool to copy formatting from cells in row 9 to cells in row 10.

Using Cell Styles

Styles contain preset font formatting, cell shading, and other formatting items that can be applied to a cell or cell range all at once. Excel contains several preset styles for you to use.

You can also modify Excel's preset cell styles, create new styles by duplicating and modifying the preset styles, or create completely new custom styles.

Apply a cell style

1. Select the cell(s) you want to format.
2. Click the **Home** tab and click the **Cell Styles** button in the Styles group.

   A gallery of styles appears.
3. Select a cell style.

   Tip: Hover the pointer over a style to preview how it will look before selecting it.

Remove a cell style

1. Select the cell(s) that have the cell style applied.
2. Click the **Home** tab and click the **Cell Styles** button in the Styles group.
3. Click **Normal**.

   Tip: These steps only remove the cell style from the selected cells—the cell style itself is not deleted from Excel. To remove a cell style from all cells and delete the cell style itself, click the **Home** tab on the Ribbon and click the **Cell Styles** button in the Styles group. Right-click the style you want to delete and select **Delete**.

Modify or duplicate a cell style

1. Click the **Home** tab and click the **Cell Styles** button in the Styles group.
2. Right-click the cell style you want to modify and select **Modify** or **Duplicate**.

   The Style dialog box appears. This is where you can change the appearance of the style being modified or duplicated.

   Trap: Selecting **Modify** changes the built-in Excel style, while selecting **Duplicate** adds a new custom style and leaves the original built-in style alone.

Exercise

- **Exercise File:** Sales4-7 xlsx
- **Exercise:** Apply the "20% - Accent 4" cell style to the merged cell A1 and the cell range A4:A12. Then remove the cell style from the range A4:A12.
  Duplicate the 20% - Accent4 cell style, name it Income&Expenses, and change the fill color to the lightest orange color. Apply the Income&Expenses style to cell A1. Then modify the Income&Expenses style and change the font size to 16 pt.

Figure 4-9: Selecting a style from the Cell Styles list.

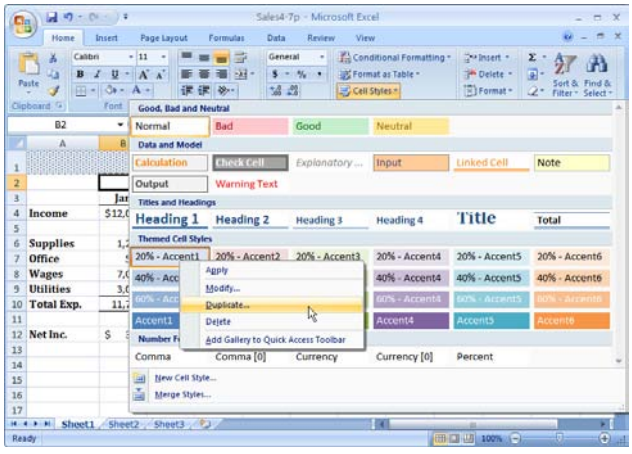


Figure 4-10: Choosing to duplicate a cell style in the style gallery.

3. If you are duplicating a style, type a new name for the style in the Style name text box.

   Now select formatting options. The Style includes area indicates formatting settings that are already included in the style.

4. Click the **Format** button and change formatting items on each tab, as desired. Click **OK**.

   The Format dialog box closes.

5. Click **OK**.

   The Style dialog box closes and the style is duplicated or modified.

Create a new cell style

1. Click the **Home** tab and click the **Cell Styles** button in the Styles group.

2. Select **New Cell Style**.

3. Type a new name for the style in the Style name text box, if desired.

4. Checkmark or uncheck "Style includes" boxes to select which formatting items you want the style to include.

5. Click the **Format** button and change formatting items on each tab, as desired. Click **OK**.

6. Click **OK** again.

Tips

- ✓ Cell styles are associated with the theme that is being used for the workbook. If you switch to a new theme, the cell styles will update to match it.
- ✓ If you have another workbook that contains styles that you want to copy into the current workbook, click the **Cell Styles** button in the Styles group and select **Merge Styles**.

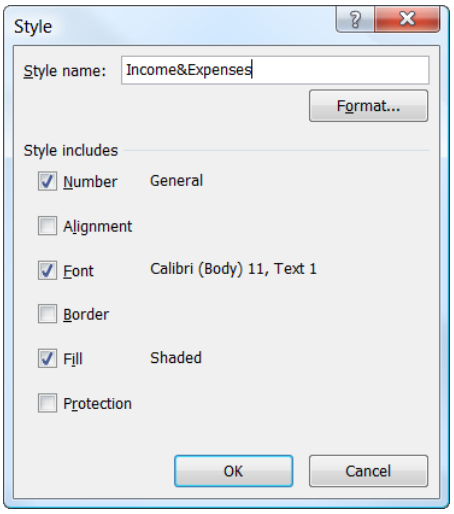


Figure 4-11: Use the Style dialog box to modify, duplicate, or create a new cell style.

Using Document Themes

A theme is a set of unified design elements that you can apply to a worksheet to give it a consistent look and feel. Document themes coordinate the look of a worksheet with theme colors, theme fonts, and theme effects.

- **Theme Colors:** A set of eight coordinated colors used in formatting text and objects in the worksheet.
- **Theme Fonts:** A set of coordinated heading and body font types.
- **Theme Effects:** A set of coordinated formatting properties for shapes and objects in the document.

Apply a document theme

Applying a document theme affects all elements of the worksheet: colors, fonts, and effects.

1. Click the **Page Layout** tab on the Ribbon and click the **Themes** button in the Themes group.

   A list of built-in document themes appears. The default theme is "Office."

   Tip: You may browse for additional themes online by clicking **More Themes on Microsoft Office Online**. Or, if a theme is saved elsewhere on your computer or network location, click **Browse for Themes** to go to the theme's location.

2. Click the document theme you want to apply.

   The formatting associated with the selected document theme is applied to the worksheet.

Customize a document theme

You are not bound to keep the colors, fonts, or effects that are assigned to a document theme. You may mix and match theme colors, theme fonts, and theme effects.

1. Click the **Page Layout** tab on the Ribbon.

2. Click the **Theme Colors**, **Theme Fonts**, or **Theme Effects** button and select the set of colors, fonts, or effects you want to use.

   The change is applied to the document. The document theme isn't changed, however, it is just no longer applied. If you want to use this custom set of themes again later, you'll have to save them as a new document theme.

Exercise

- **Exercise File:** Sales4-8 xlsx
- **Exercise:** Apply the Apex document theme.
  Create new theme colors by changing Accent 1 to Yellow and Accent 6 to Red. Save the new theme color under the name "Income&Expenses".
  Create new theme fonts by changing the Heading font to Verdana and the body font to Bookman Old Style. Save the new theme font under the name "Income&Expenses".
  Save the current settings as a new document theme called "Income&Expenses." Then change the workbook back to the Office document theme.

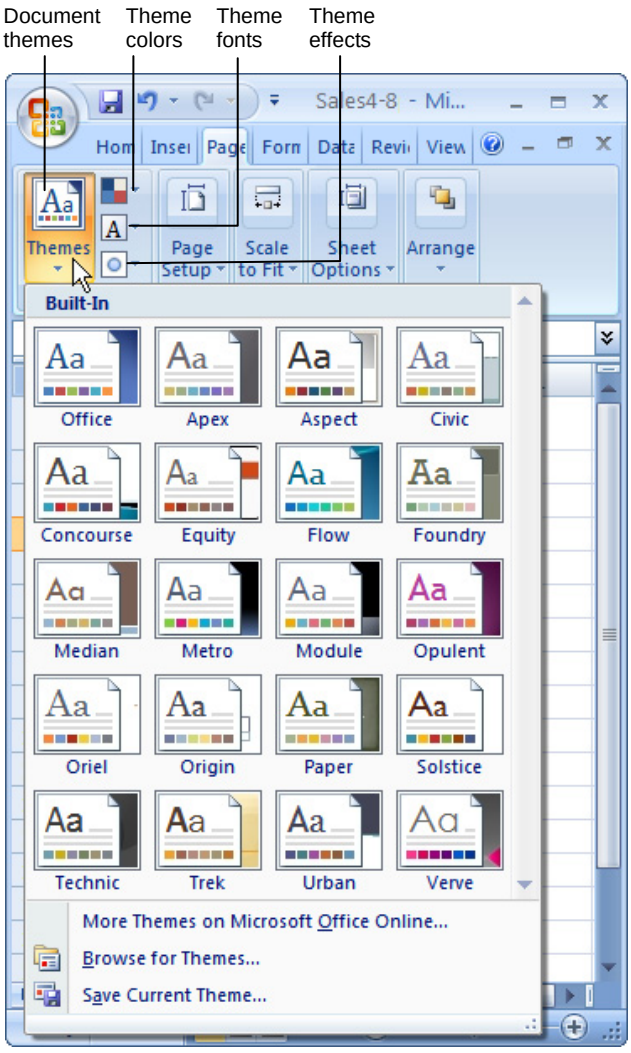


Figure 4-12: Selecting a document theme.

Create new theme colors and fonts

You can also change which colors or fonts make up the theme colors and theme fonts. This can be useful if you want to create a document theme that is customized for your company or for a special project.

1. Click the **Page Layout** tab on the Ribbon.
2. Click the **Theme Colors** or **Theme Fonts** button.
3. Select **Create New Theme Colors** or **Create New Theme Fonts** from the list.

   A dialog box appears where you can select colors or fonts.
4. Select the colors or fonts you want to use.

   Once the color or font theme looks the way you want it to, save it.
5. Type a name for the new theme in the "Name" text box.

   If you want to coordinate new theme colors and fonts, save them under the same name, just as they are with built-in themes.
6. Click **Save**.

Save a new document theme

Finally, you can save any combination of theme colors, theme fonts, and theme effects as a new document theme.

1. Apply the colors, fonts, and effects you want to use in the new document theme.
2. Click the **Page Layout** tab on the Ribbon and click the **Themes** button in the Themes group.
3. Select **Save Current Theme**.

   The Save Current Theme dialog box appears.
4. Type a name for the theme in the File name box.
5. Click **Save**.

Tips

- ✓ When you save a new theme color or font, or save a new document theme, it becomes available in all Office programs.
- ✓ To remove a custom theme or theme element, right-click the theme and select **Edit**. Click **Delete** in the dialog box and click **Yes** to confirm the deletion.

Applying Conditional Formatting

Conditional formatting formats cells only if a specified condition is true. For example, you could use conditional formatting to display weekly sales totals that exceeded $50,000 in bright red boldface formatting, and in bright blue italics formatting if the sales totals were under $20,000. If the value of the cell changes and no longer meets the specified condition, the cell returns to its original formatting.

Apply Highlight Cells Rules and Top/Bottom Rules

You can highlight specific cells in a range using a comparison operator; only cells that meet the specified criteria will be formatted. For example, you can highlight cells with values that are greater than a certain value.

1. Select the cell range you want to format.

2. Click the **Home** tab on the Ribbon and click the **Conditional Formatting** button in the Styles group.

   A menu appears. Here you have several conditional formatting rules to choose from:

   Highlight Cells Rules: These conditions focus on general analysis. Preset conditions include: Greater Than; Less Than; Between; Equal To; Text That Contains; Date Occurring; Duplicate Values.

   Top/Bottom Rules: These conditions focus on the high and low values in the worksheet. Preset conditions include: Top 10 Items; Top 10%; Bottom 10 Items; Bottom 10%; Above Average; Below Average.

3. Point to **Highlight Cells Rules** or **Top/Bottom Rules** and select a conditional formatting rule.

   A dialog box appears, allowing you to specify the details relating to the rule.

   For example, if you selected the Greater Than rule, in the "Format cells that are GREATER THAN:" box you can enter a value or click a cell to enter a cell reference. Then you can click the list arrow and select the formatting you want to apply to cells that fit the criteria you set—in this example, cells that are greater than the value you entered.

4. Complete the dialog box to define the condition.

5. Click **OK**.

   The conditional formatting is applied to the cells.

Exercise

- **Exercise File:** Sales4-9 xlsx
- **Exercise:** In the cell range B4:G4, use conditional formatting to highlight cells that are below the cell range's average.
  Add Blue data bars to cells B10:G10.
  Add the 3 Arrows (colored) icon set to cells B12:G12. (You may need to widen a few of the columns so that the arrow icons fit.)

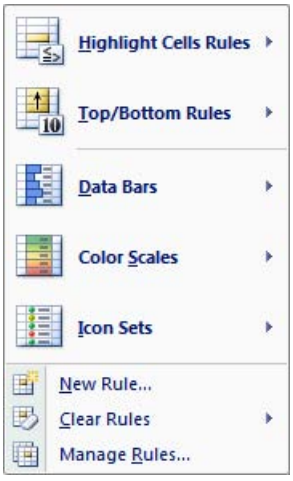


Figure 4-13: This list of options appears when you click the Conditional Formatting button in the Styles group.

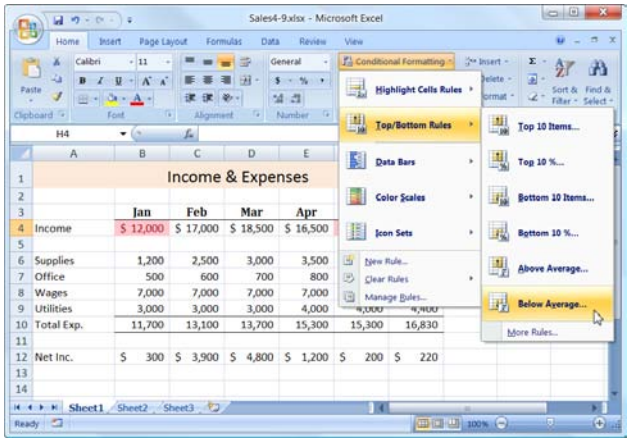


Figure 4-14: The Below Average rule applied to the workbook.

Apply Data Bars, Color Scales and Icon Sets

You can also format cells with data bars, color scales, or icon sets to visually display variations in the values of cells in a range.

1. Select the cell range you want to format.

2. Click the **Home** tab on the Ribbon and click the **Conditional Formatting** button in the Styles group.

   Let's take a closer look at three similar types of conditional formatting:

   Data Bars: Colored bars appear in the cells. The longer the bar, the higher the value in that cell. You can choose from different bar colors.

   Color Scales: Cells are shaded different color gradients depending on the relative value of each cell compared to the other cells in the range. You can choose from different colors.

   Icon Sets: Different shaped or colored icons appear in cells, based on each cell's value. You can choose from several types and colors of icons.

3. Point to **Data Bars**, **Color Scales** or **Icon Sets**.

   A menu appears, differing based on your selection.

4. Select a data bar, 2- or 3-color scale, or icon set.

   The conditional formatting is applied to the cells.

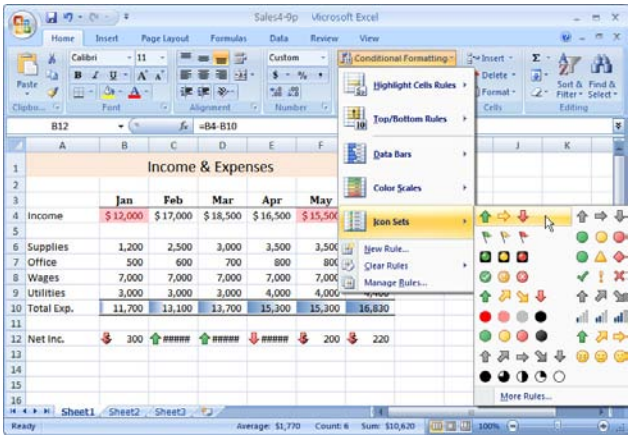


Figure 4-15: Applying conditional formatting.

	A	B	C	D	E	F	G	H
1	Income & Expenses							
2								
3		Jan	Feb	Mar	Apr	May	June	
4	Income	$12,000	$ 17,000	$ 18,500	$ 16,500	$15,500	$ 17,050	
5								
6	Supplies	1,200	2,500	3,000	3,500	3,500	3,850	
7	Office	500	600	700	800	800	880	
8	Wages	7,000	7,000	7,000	7,000	7,000	7,700	
9	Utilities	3,000	3,000	3,000	4,000	4,000	4,400	
10	Total Exp.	11,700	13,100	13,700	15,300	15,300	16,830	
11								
12	Net Inc.	$ 300	$3,900	$4,800	$1,200	$ 200	$ 220	
13								

Figure 4-16: The worksheet with conditional formatting applied.

Creating and Managing Conditional Formatting Rules

You can create and manage new conditional formatting rules that follow the parameters and formatting you specify.

Create a new rule

1. Select the cell range you want to format with a customized rule.
2. Click the **Home** tab on the Ribbon and click the **Conditional Formatting** button in the Styles group.
3. Select **New Rule**.

   The New Formatting Rule dialog box appears.
4. Select a rule type in the Select a Rule Type list.
5. Complete the fields in the Edit the Rule Description area.

   This area will display different fields depending on the type of rule you selected.

   Tip: Click **Preview** in the New Formatting Rule dialog box if you want to see how the rule will appear before you apply it.
6. Click **OK**.

   The new rule is created and formatting is applied.

   Other Ways to Create a New Rule:
   Click the **Home** tab on the Ribbon and click the **Conditional Formatting** button in the Styles group. Click **Manage Rules**, then click **New Rule**. Or, click the **Home** tab on the Ribbon and click the **Conditional Formatting** list arrow in the Styles group. Click one of the rule types, then click **More Rules**.

Manage rules

You can manage all aspects of conditional formatting—creating, editing, and deleting rules—in one place using the Rules Manager.

1. Select the cell range with the conditional formatting you want to manage.
2. Click the **Home** tab on the Ribbon and click the **Conditional Formatting** button in the Styles group.

Exercise

- **Exercise File:** Sales4-10 xlsx
- **Exercise:** Select the cell range B4:G4, then create and apply a new formatting rule to apply bold formatting to values that are below average for the selected range.
  Select cells B12:G12 and edit the rule so that the green icon appears for values greater than or equal to 60% and the yellow for values greater than or equal to 30%.
  View the worksheet with the changes, then clear all the rules on the worksheet.

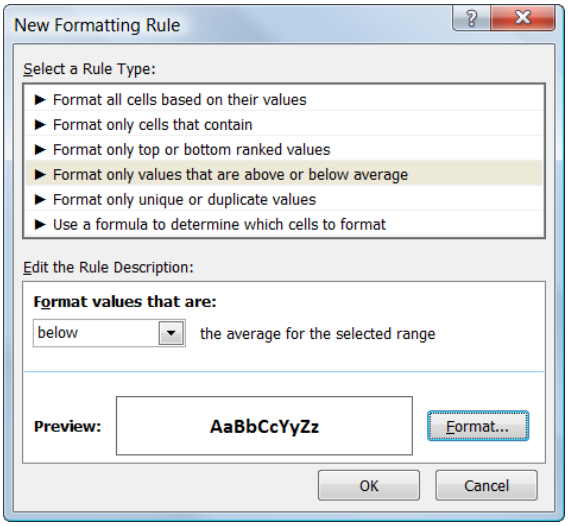

New Formatting Rule
Select a Rule Type:
Format all cells based on their values
Format only cells that contain
Format only top or bottom ranked values
Format only values that are above or below average
Format only unique or duplicate values
Use a formula to determine which cells to format
Edit the Rule Description:
Format values that are:
below
the average for the selected range
Preview:
AaBbCcYyZz
Format...
OK
Cancel

Figure 4-17: Creating a new conditional formatting rule.

3. Select **Manage Rules**.

   The Conditional Formatting Rules Manager dialog box appears. The rules applied to the selected cells appear in the dialog box.

   Use these buttons to manage the rules:

   - **New Rule:** Create a brand new conditional formatting rule.
   - **Edit Rule:** Edit the selected formatting rule.
   - **Delete Rule:** Delete the selected rule from the worksheet.

   Tip: If you don't select a cell range where conditional formatting is applied, you can view all the rules in the worksheet. Click the **Show formatting rules for** list arrow and select **This Worksheet**.

4. Manage the formatting rules. Click **OK** when you are finished.

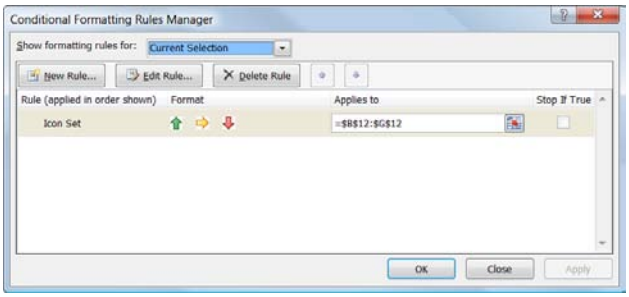


Figure 4-18: The Conditional Formatting Rules Manager dialog box.

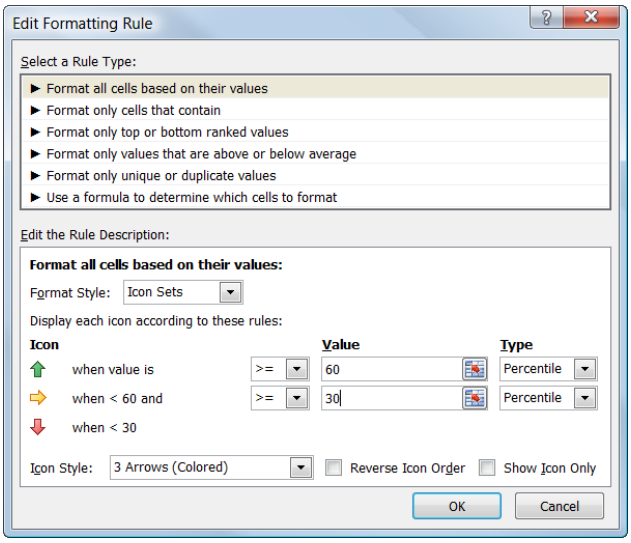


Figure 4-19: Editing a formatting rule.

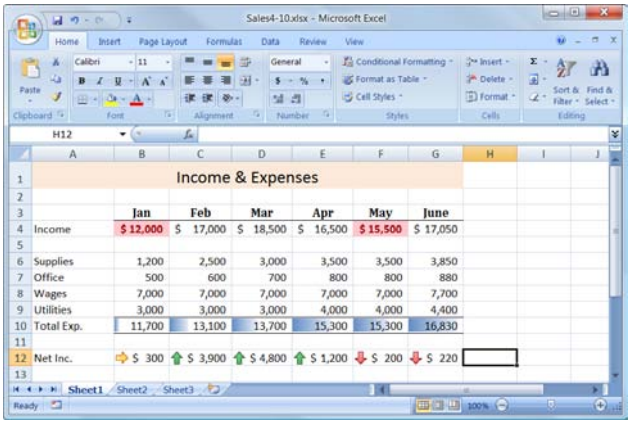


Figure 4-20: The worksheet with edited conditional formatting.

Clear rules

The Clear Rules command helps you remove conditional formatting rules from your worksheet.

1. Click the **Home** tab on the Ribbon and click the **Conditional Formatting** list arrow in the Styles group.

   If you want to clear only a selection of cells, first select the cell range.

2. Point to **Clear Rules**.

3. Select **Clear Rules from Selected Cells** or **Clear Rules from Entire Sheet**.

   Conditional formatting is cleared either from the cells you've selected or the entire worksheet.

Finding and Replacing Formatting

Excel's Find and Replace features can find and/or replace formatting in addition to text and information.

1. Click the **Home** tab on the Ribbon and click the **Find & Select** button in the Editing group.

2. Select **Replace**.

The Find and Replace dialog box appears, displaying the Replace tab.

Other Ways to Open Find and Replace:
Press **<Ctrl>** + **<H>**.

3. Click the **Options** button.

The dialog box expands to display more search options.

4. Click the top **Format** button.

The Find Format dialog box appears.

5. Select the formatting options you want to find and then click **OK**.

6. Click the bottom **Format** button.

The Replace Format dialog box appears.

7. Select the new formatting options you want to use and click **OK**.

Once the formatting options are set, you're ready to begin finding and replacing the formatting.

8. Click **Find Next** to find each occurrence of the cell formatting. Click **Replace** to replace the cell formatting.

After you replace an occurrence, Excel automatically moves to the next occurrence, so you only need to click Find Next if you want to skip an occurrence without replacing the formatting.

Tips

- ✓ Click **Replace All** to replace all occurrences of the cell formatting at once.
- ✓ To find other types of items, click the **Find & Select** button and then select one of the Find options: Formulas, Comments, Conditional Formatting, Constants, or Data Validation.

Exercise

- **Exercise File:** Sales4-11 xlsx
- **Exercise:** Replace all bold formatting in the worksheet with bold italic formatting.

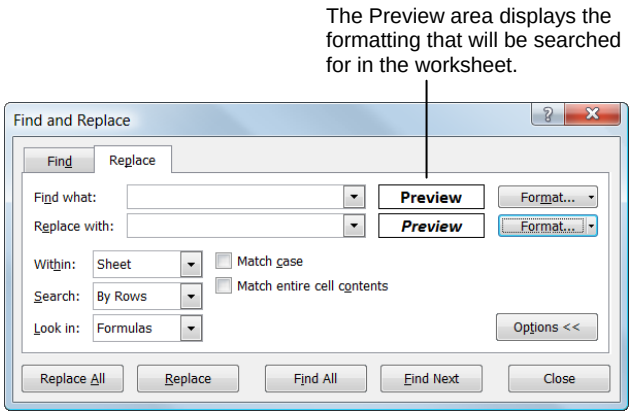


Figure 4-21: The Replace tab of the Find and Replace dialog box.

	A	B	C	D	E	F	G
1		Income & Expenses					
2							
3		*Jan*	*Feb*	*Mar*	*Apr*	*May*	*June*
4	Income	$ 12,000	$ 17,000	$ 18,500	$ 16,500	$ 15,500	$ 17,050
5							
6	Supplies	1,200	2,500	3,000	3,500	3,500	3,850
7	Office	500	600	700	800	800	880
8	Wages	7,000	7,000	7,000	7,000	7,000	7,700
9	Utilities	3,000	3,000	3,000	4,000	4,000	4,400
10	Total Exp.	11,700	13,100	13,700	15,300	15,300	16,830
11							
12	Net Inc.	$ 300	$ 3,900	$ 4,800	$ 1,200	$ 200	$ 220
13							

Figure 4-22: The formatting of headings in cell range B3:G3 is updated through finding and replacing formatting.

5

Creating and Working with Charts

Creating a Chart..... 73

Resizing and Moving a Chart 75
Resize a chart..... 75
Move a chart within a worksheet 75
Move a chart to another worksheet 75

Changing Chart Type 76

Applying Built-in Chart Layouts and Styles.... 77

Working with Chart Labels 78
Add or adjust a chart label..... 78
Edit chart label text 79

Working with Chart Axes 80
Adjust how an axis is displayed..... 80
Use the Format Axis dialog box..... 80

Working with Chart Backgrounds..... 81

Working with Chart Analysis Commands 82

Formatting Chart Elements 83

Changing a Chart's Source Data..... 85

Using Chart Templates..... 86
Save a chart as a template..... 86
Create a new chart using a template..... 86
Delete a template..... 86

Charts allow you to present data, relationships, or trends graphically. Charts are often better at presenting information than hard-to-read numbers in a table or spreadsheet.

In this chapter, you will learn how to create, edit and format dynamic looking charts.

Using Exercise Files

This chapter suggests exercises to practice the topic of each lesson. There are two ways you may follow along with the exercise files:

- Open the exercise file for a lesson, perform the lesson exercise, and close the exercise file.
- Open the exercise file for a lesson, perform the lesson exercise, and keep the file open to perform the remaining lesson exercises for the chapter.

The exercises are written so that you may "build upon them", meaning the exercises in a chapter can be performed in succession from the first lesson to the last.

Creating a Chart

In Excel 2007, you can quickly create a basic chart using your worksheet data.

1. Select the cell range containing the data and labels you want to chart.

   Tip: You can chart non-adjacent cells if you hold down the **<Ctrl>** key while selecting the cells.

2. Click the **Insert** tab on the Ribbon.

   In the Charts group, there are several chart types to choose from as described in Table 5-1: Chart Types. Each of the chart types then has several charts to choose from.

3. Click a **chart type** button in the Charts group.

   A list of charts for the selected chart type appears.

4. Select the chart you want to use from the list.

   The chart appears in the worksheet and the Chart Tools appear on the Ribbon. The Chart Tools include three new tabs—Design, Layout and Format—that help you modify and format the chart.

Tips

- ✓ To see all available chart types, click any chart type in the Charts group, and then select **All Chart Types**. The Insert Chart dialog box appears, displaying every chart type that is available.
- ✓ You can create 2-D or 3-D charts in Excel. 3-D charts have an additional depth axis in addition to the vertical and horizontal axes.

Exercise

- **Exercise File:** Sales5-1 xlsx
- **Exercise:** Select the header row containing the month labels; the Income row; the Total Exp. row; and the Net Inc. row (use the <Ctrl> key to select multiple rows). Create a 2-D Clustered Column chart.

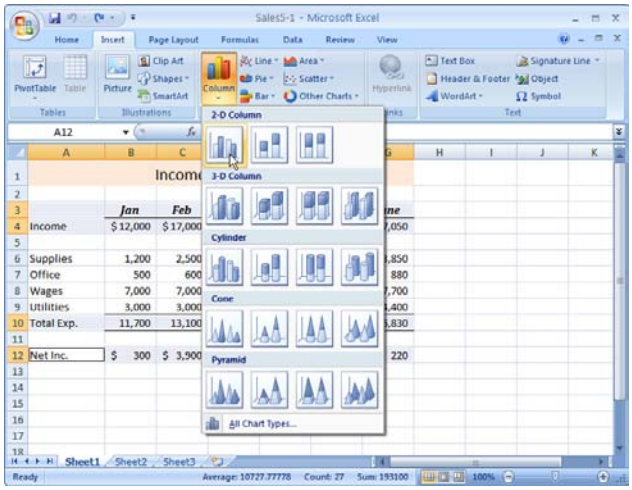


Figure 5-1: Selecting a type of chart.

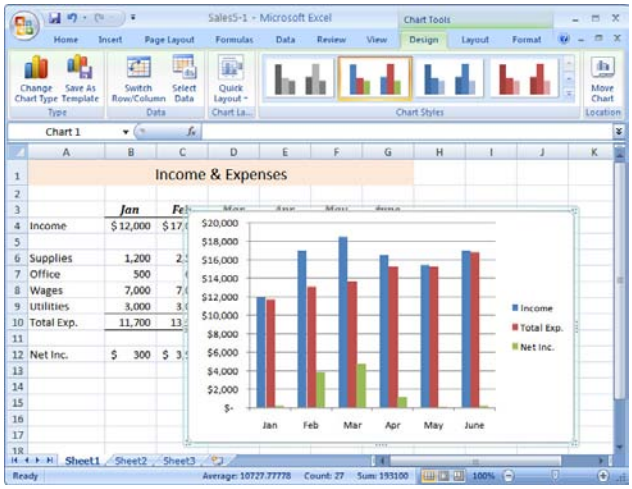


Figure 5-2: A 2-D Clustered Column chart.

Table 5-1: Chart Types

	Column	Column charts are used when you want to compare different values vertically side-by-side. Each value is represented in the chart by a vertical bar. If there are several series, each series is represented by a different color.
	Line	Line charts are used to illustrate trends over time. Each value is plotted as a point on the chart and is connected to other values by a line. Multiple items are plotted using different lines.
	Pie	Pie charts are useful for showing values as a percentage of a whole. The values for each item are represented by different colors.
	Bar	Bar charts are just like column charts, except they display information in horizontal bars rather than in vertical columns.
	Area	Area charts are the same as line charts, except the area beneath the lines is filled with color.
	XY (Scatter)	Scatter charts are used to plot clusters of values using single points. Multiple items can be plotted by using different colored points or different point symbols.
	Other Charts	Select from Stock, Surface, Doughnut, Bubble, or Radar-type charts. You can also make a combination chart by selecting a different type of chart for only one of the data series.

Resizing and Moving a Chart

When you create a chart, it is embedded in the worksheet and appears in a frame. You can resize a chart, move it within the worksheet, or move it to another worksheet.

Resize a chart

1. Select the chart.

   Eight sizing handles appear along the chart edges once it is selected. Sizing handles are used to change the size of charts and other objects.

   Tip: Clicking a chart displays the Chart Tools on the Ribbon, which include the Design, Layout, and Format tabs.

2. Click a sizing handle and drag it to resize the chart.

   The chart is resized.

   Tip: A faint outline appears as you drag the chart border so that you can preview the size of the chart before releasing the mouse button.

Move a chart within a worksheet

1. Select the chart.
2. Point to the chart's border.

   The pointer changes to a cross-arrow pointer.

3. Click and drag the chart in the worksheet.

Move a chart to another worksheet

You can move a chart to another worksheet as an embedded object or move it to its own worksheet.

1. Under Chart Tools on the Ribbon, click the **Design** tab and click the **Move Chart** button in the Location group.

   The Move Chart dialog box appears, displaying two options:

   - **New sheet:** Moves the chart to its own worksheet.
   - **Object in:** Allows you to embed the chart in another existing worksheet.

2. Select the option you want to use and enter or select a worksheet name.
3. Click **OK**.

Exercise

- **Exercise File:** Sales5-2 xlsx
- **Exercise:** Resize the chart to about 2/3 of its original size, then move the chart to the right so it's next to the data table (you may need to make the program window wider).

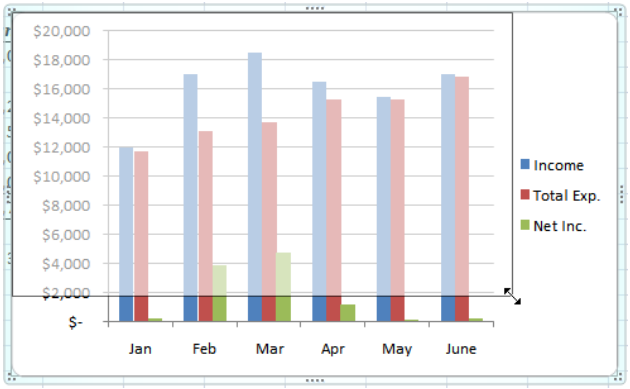


Figure 5-3: Resizing a chart.

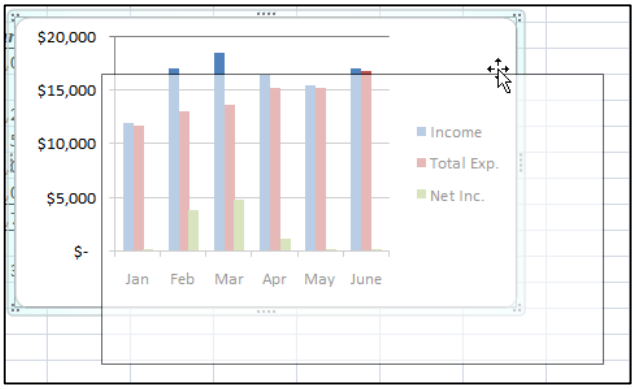


Figure 5-4: Moving a chart within a worksheet.

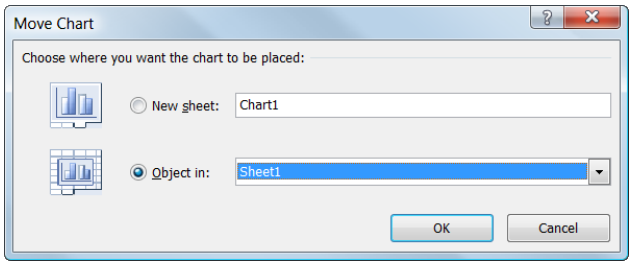


Figure 5-5: Moving a chart to another worksheet with the Move Chart dialog box.

Changing Chart Type

Different types of charts are better for presenting different types of information. For example, a column chart is great for comparing values of different items, but not for illustrating trends or relationships. If you find that a chart you've created isn't the best fit for your data, you can switch to a different chart type.

1. Select the chart.

The Chart Tools appear on the Ribbon.

2. Under Chart Tools on the Ribbon, click the **Design** tab.

Now you can see the Type group.

3. Click the **Change Chart Type** button in the Type group.

The Change Chart Type dialog box appears. Here you can see the different types of charts that are available.

4. Select a chart type in the list on the left, then select a chart sub-type from the list on the right.

5. Click **OK**.

Tips

✓ You can also create a combination chart. Right-click a single data series in the chart and select **Change Series Chart Type** from the contextual menu. Select a new chart type for the single data series.

Exercise

- **Exercise File:** Sales5-3 xlsx
- **Exercise:** Change the chart type to a 3-D Clustered Column chart, then change it back to a 2-D Clustered Column chart.
  Change the Net Inc. data series to a Line chart type to create a combined chart.

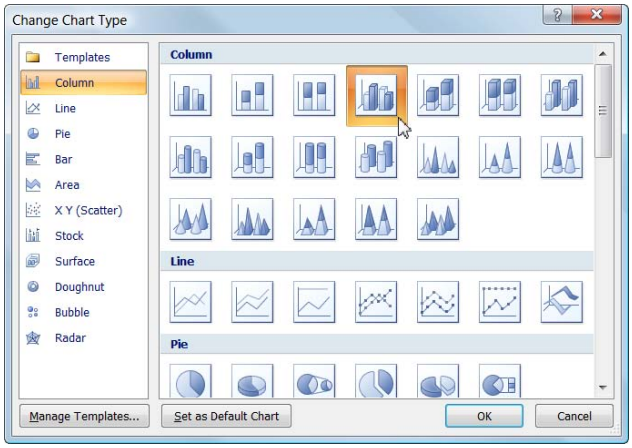


Figure 5-6: Selecting a 3-D Clustered Column chart in the Change Chart Type dialog box.

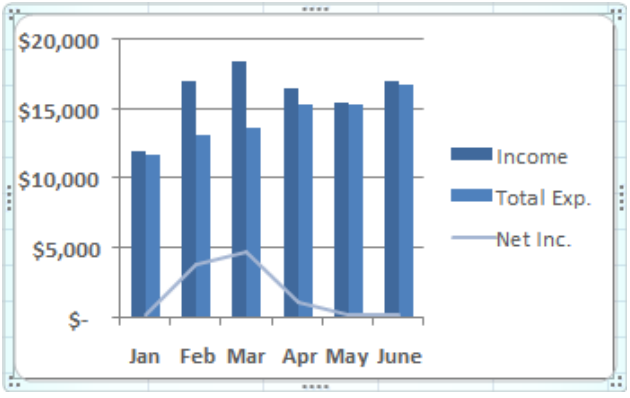


Figure 5-7: A combination chart.

Applying Built-in Chart Layouts and Styles

Excel 2007 has built-in chart layouts and styles that allow you to format charts with the click of a button.

Apply a built-in chart layout

Built-in chart layouts allow you to quickly adjust the overall layout of your chart with different combinations of titles, labels, and chart orientations.

1. Select the chart.

   The Chart Tools appear on the Ribbon.

2. Under Chart Tools on the Ribbon, click the **Design** tab.

   Here you can see the Chart Layouts and Chart Styles groups.

3. Select the option you want to use from the Chart Layouts gallery in the Chart Layouts group.

   The chart layout changes.

Apply a built-in chart style

Built-in chart styles allow you to adjust the format of several chart elements all at once. Styles allow you to quickly change colors, shading, and other formatting properties.

1. Select the chart.

   The Chart Tools appear on the Ribbon.

2. Under Chart Tools on the Ribbon, click the **Design** tab.

3. Select the option you want to use from the Chart Styles gallery in the Chart Styles group.

   The new style is applied.

Tips

✓ The Chart Layouts and Chart Styles groups offer many formatting options. A few are displayed by default, but you can click the arrow buttons to scroll down and access additional layouts and styles, or you can click the **More** button to expand a gallery.

Exercise

- **Exercise File:** Sales5-4 xlsx
- **Exercise:** Apply built-in Layout 9 and built-in Style 3 to the chart.

Figure 5-8: The Chart Layouts group.

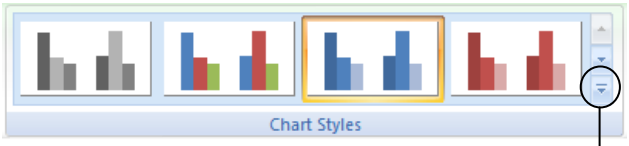


Figure 5-9: The Chart Styles group.

Working with Chart Labels

Besides using built-in chart layouts, you can manually add or edit individual chart labels such as chart titles, axis titles, and data labels.

Add or adjust a chart label

You can add a new chart title, legend, data label or data table, or adjust how it appears.

1. Select the chart.

   Tip: If you only want to add a data label to one data series, select just that data series, instead of the entire chart area.

2. Under Chart Tools on the Ribbon, click the **Layout** tab.

   In the Labels group, there are several types of labels to choose from:

   - **Chart Title:** Add, remove, or position the chart title.
   - **Axis Titles:** Add, remove, or position the text used to label the chart axes.
   - **Legend:** Add, remove, or position the chart legend.
   - **Data Labels:** Use data labels to label the values of individual chart elements.
   - **Data Table:** Add a data table to the chart. A data table is a table that contains the data and headings from your worksheet that makes up the chart data.

3. Click the button you want to use in the Labels group.

   A list appears with different display options for that label.

   Tip: If you don't see a label option that suits you, click the **More Options** button at the end of the list to display the Format dialog box. Here you can fine-tune the label to your specifications.

4. Select the label display option you want to use from the list.

   The label appears on the chart. If you add a chart or axis title, placeholder text will appear that you can replace with your own text.

Exercise

- **Exercise File:** Sales5-5 xlsx
- **Exercise:** Add data labels above the Net Inc. data series. You may need to increase the size of the chart to fit the new labels. Edit the Chart Title label to read "Net Income," the vertical axis to read "Dollars" and the horizontal axis to read "Months."

Figure 5-10: The Labels group.

Edit chart label text

Once you create a title or label, you can edit the text.

1. Select the chart and select the title or a data label.
2. Click the label again to enter editing mode.

   A cursor appears in the label.
3. Edit the label text.

Tips

- ✓ Text that is linked to worksheet data cannot be directly edited. To edit these labels, you need to edit the labels and data in the actual worksheet.
- ✓ To move a chart element, select it and drag it to a new location.

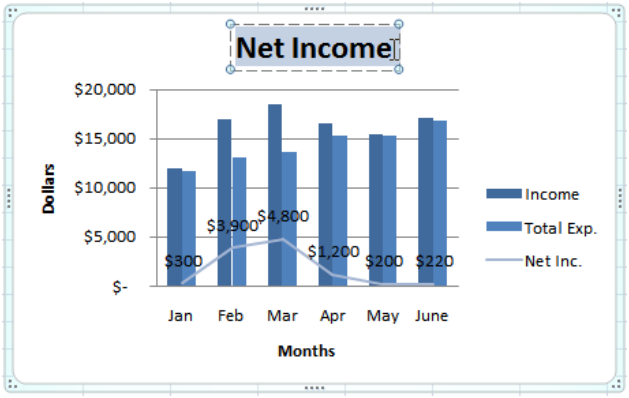


Figure 5-11: Editing a chart label.

Working with Chart Axes

You can manipulate how chart axes are displayed by using the Layout tab under Chart Tools on the Ribbon. Most charts have two axes—a vertical one for values and a horizontal one for categories. 3-D charts have an additional depth axis, while pie charts have no axes at all. In addition, different chart types display axes in different ways, with values appearing on different axes and with axes exhibiting various scales.

In this lesson you'll learn how to display or hide axes, adjust tick marks and labels, and change the alignment and orientation of axis labels.

Adjust how an axis is displayed

You can choose from different ways to display or even hide axes.

1. Select the chart.
2. Under Chart Tools on the Ribbon, click the **Layout** tab and click the **Axes** button in the Axes group.

   A menu appears, allowing you to select whether you want to work with the vertical or horizontal axis.
3. Point to an axis option.

   A list appears with different display options.
4. Select the axis display option you want to use from the list.

   Tip: To hide an axis, select the **None** option.

Use the Format Axis dialog box

You can fine-tune axis values, tick marks, and label location using the Format Axis dialog box.

1. Click the axis you want to adjust.
2. Under Chart Tools on the Ribbon, click the **Format** tab and click **Format Selection** in the Current Selection group.

   The Format Axis dialog box appears.
3. Click **Axis Options**.

   The Axis Options pane appears. The Format Axis Dialog Box table describes the options available here.
4. Select the option(s) you want to use and click **Close**.

   Repeat the process for additional axes.

Exercise

- **Exercise File:** Sales5-6 xlsx
- **Exercise:** Display the vertical axis in thousands and remove the Dollars axis label (the Thousands label will be visible). Add minor outside tick marks to the vertical axis.

Table 5-2: Format Axis Dialog Box

Minimum/ maximum values	By default, Excel chooses the minimum and maximum axis values for you, but you can adjust the scale of an axis by selecting Fixed and entering your own values.
Major/minor unit	Excel determines the axis unit of measure by default, but you can select your own here.
Display units	Choose the units you want to use to display axis values—for example, in thousands or millions.
Major/minor tick mark type	Select whether or not you want to display major or minor tick marks, as well as whether they are displayed inside, outside, or across the axis.
Axis labels	Decide where you want axis labels located.

Working with Chart Backgrounds

With background commands, you can apply color to the plot area of 2-D charts and the walls or floor of 3-D charts. You can also adjust how 3-D charts are formatted and displayed.

1. Select the chart.

2. Under Chart Tools on the Ribbon, click the **Layout** tab on the Ribbon.

   Here you can see the Background group.

   If your chart is a 2-D chart, you will have access to the Plot Area button. If it is a 3-D chart, you will have access to the Chart Wall, Chart Floor, and 3-D View buttons.

3. Click the button you want to use in the Background group.

   A list or dialog box appears displaying different options, depending on which button you clicked.

   Table 5-3: Background Group Buttons describes the options that accompany each button.

   Tip: Select **More [button name] Options** to display the Format [button name] dialog box, which provides additional background formatting options.

4. Select the option you want to use from the list or dialog box.

   Tip: If you make a selection in a dialog box, you will also need to click the **Close** button to apply the background option and close the dialog box.

Exercise

- **Exercise File:** Sales5-7 xlsx
- **Exercise:** Apply a Gradient fill to the plot area and choose the Daybreak preset color (Hint: Use the Format Plot area dialog box).

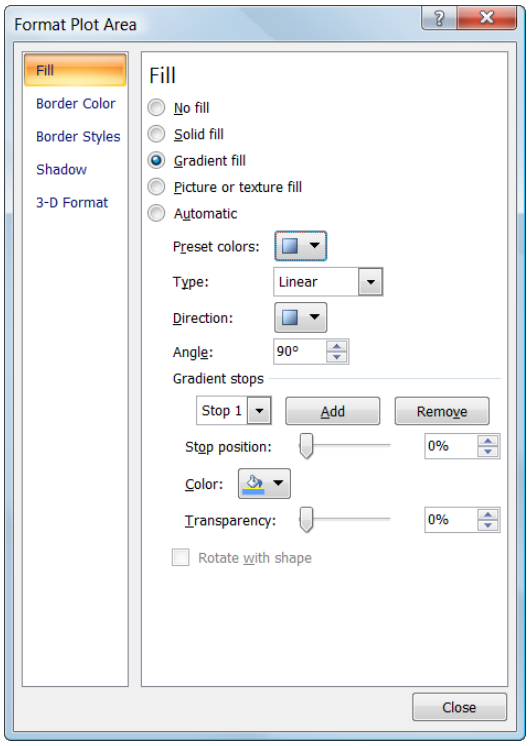


Figure 5-12: The Format Plot Area dialog box.

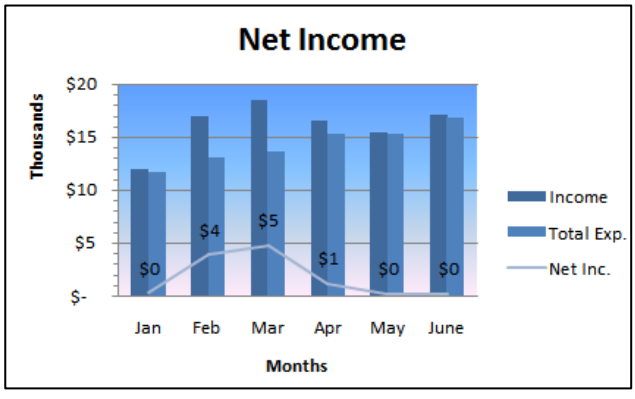


Figure 5-13: A chart with a gradient fill applied.

Table 5-3: Background Group Buttons

Plot Area, Chart Wall, or Chart Floor buttons	**None:** Clears the plot area, wall, or floor of any fill. **Show Plot Area:** Fills the plot area with a default fill color **More [button name] Options**: Opens the Format [button name] dialog box. In the Format Plot Area dialog box, for example, you can select Fill options such as **Solid**, **Gradient**, **Picture or texture fill**, and you can select a fill color and adjust its transparency.
3-D View button	The Format Chart Area dialog box gives you several options for changing the format and rotation of your 3-D chart.

Working with Chart Analysis Commands

You can add trendlines and other analytical elements to your chart using the Analysis commands.

1. Select the chart.

Tip: Depending on the type of chart you're working with, you may not have access to all of the analysis commands.

2. Under Chart Tools on the Ribbon, click the **Layout** tab.

Here you can see the Analysis group, which contains four buttons:

- **Trendline:** Add a linear trendline to the selected data series—works well with column-type charts.
- **Lines:** Add drop lines (lines that connect a data series line to the horizontal axis) or high-low lines (lines that connect two data lines) in a line-type chart.
- **Up/Down Bars:** Add bars that graph the distance between two lines in a line chart.
- **Error Bars:** Add bars that show the margin of error on the chart.

3. Click the button you want to use in the Analysis group.

A list appears, displaying different options depending on which button you clicked.

4. Select the option you want to use from the list.

A dialog box may appear, depending on the option you chose. Complete the dialog box to finish the command as necessary.

Exercise

- **Exercise File:** Sales5-8 xlsx
- **Exercise:** Add a linear trendline to the Income data series.

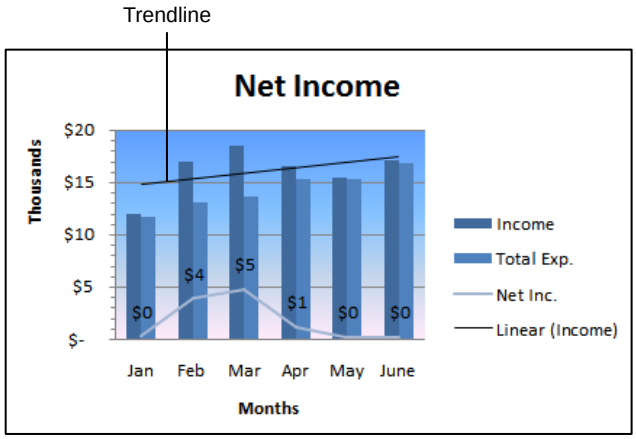


Figure 5-14: A chart with a linear trendline added.

Formatting Chart Elements

You can use the Format tab to change the look of individual chart elements such as an axis, title, data label, or shape.

1. Click a chart element to select it.

Other Ways to Select a Chart Element: Under Chart Tools on the Ribbon, click the **Format** tab and click the list arrow in the Current Selection group. Select the chart element you want to format.

2. Under Chart Tools on the Ribbon, click the **Format** tab.

Format tab commands are arranged in the following groups:

- **Current Selection:** Click the **Format Selection** button to display the Format [selected element] dialog box. Select formatting options to apply to the chart element.
- **Shape Styles:** Select the Shape Style that you want to apply to the chart element from the gallery. Or, click the **Shape Fill**, **Shape Outline**, or **Shape Effects** list arrows and select formatting options.
- **WordArt Styles:** Select an element that includes text or numbers, then select a WordArt Style from the gallery. Or click the **Text Fill**, **Text Outline**, or **Text Effects** list arrows and select formatting options.
- **Arrange:** Click the **Selection Pane** button to display the Selection Pane, where you can select individual chart elements to format. Or click the **Bring to Front**, **Send to Back**, **Align**, **Group**, or **Rotate** list arrows to arrange the chart elements that you've selected.
- **Size:** Click the **Height** and **Width** arrows to change the size of the chart.

3. Select the formatting command you want to use.

Some commands will require you to choose additional options.

4. Select any additional options you want to use.

You can apply several formatting options to elements in the chart.

Exercise

- **Exercise File:** Sales5-9 xlsx
- **Exercise:** Apply one of the WordArt styles to the chart title "Net Income". Increase the height and width of the chart if necessary.

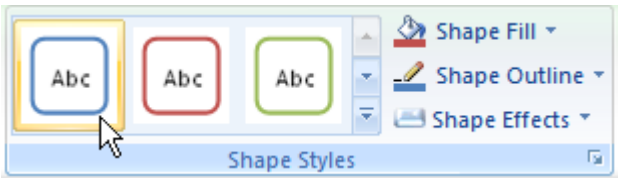


Figure 5-15: Selecting a Shape style.

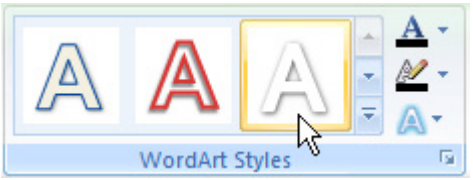


Figure 5-16: Selecting a WordArt style.

Other Ways to Format Chart Elements:
To perform basic text formatting, right-click a chart element that contains text or numbers and select formatting options you want to use from the Mini Toolbar or select **Format Data Labels** from the contextual menu and select the formatting options you want to use.

Tips

- ✓ Click the **More** button to expand a gallery to its full size.

Changing a Chart's Source Data

Once you've created a chart, you can change which cells are used as the chart's data source.

Exercise

- **Exercise File:** Sales5-10 xlsx
- **Exercise:** Change the chart's source data to include only the Income and Net Inc. series, and not the Total Exp. series.

1. Select the chart.
2. Under Chart Tools on the Ribbon, click the **Design** tab.

   Now you can see the Data group.
3. Click the **Select Data** button in the Data group.

   The Select Data Source dialog box appears.
4. Click the **Chart Data Range** reference button.

   The dialog box shrinks so you can select a new cell range in the worksheet.
5. Select the cell range(s) in the worksheet you want to use as the chart's new data source.

   Tip: Hold down the **<Ctrl>** key while selecting to select multiple cell ranges at once.

   Other Ways to Select a New Data Source: Use the buttons in the Edit Data Source dialog box to add or remove the Series and Categories you want to include, then click **OK**.
6. Press the **<Enter>** key.

   You return to the Select Data Source dialog box.

   Other Ways to Confirm the Cell Selection: Click the **Chart Data Range** reference button.
7. Click **OK**.

   The chart updates to reflect that data from the new cell range.

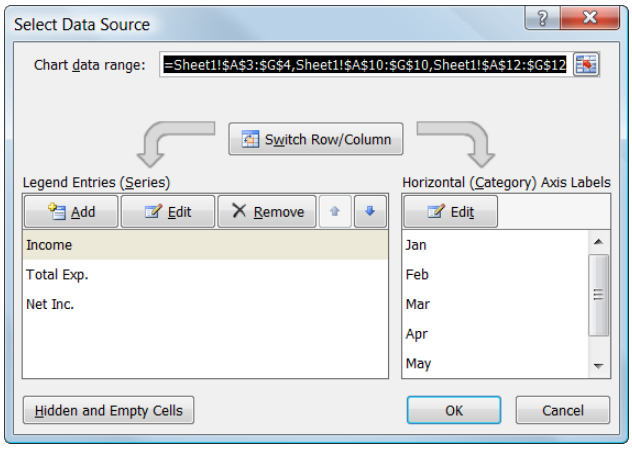


Figure 5-17: Changing the chart's data source using the Select Data Source dialog box.

Tips

✓ You can switch the rows and columns of data in a chart so they appear in opposite positions. Select the chart. Under Chart Tools on the Ribbon, click the **Design** tab. Click the **Switch Row/Column** button in the Data group.

Using Chart Templates

You can save a template of a chart that you've customized with your own layouts and formatting. Then you can use the template to create similar charts in the future.

Save a chart as a template

When you save a chart as a template, that chart's properties are saved for easy future use.

1. Select the chart you want to save as a template.
2. Under Chart Tools on the Ribbon, click the **Design** tab and click the **Save as Template** button in the Type group.

   The Save Chart Template dialog box appears.
3. Type a name for the template in the File name box and click **Save**.

Create a new chart using a template

Once you've saved a template, you can use that template to create a new chart.

1. Open a workbook and select the cell range you want to chart.
2. Click the **Insert** tab on the Ribbon and click the **Dialog Box Launcher** in the Charts group.

   The Insert Chart dialog box appears.
3. Click **Templates** in the list on the left.

   The templates you've saved appear in the gallery.
4. Select the template you want to use from the gallery on the right and click **OK**.

Delete a template

If you decide you no longer need a certain chart template, you can delete it.

1. Click the **Insert** tab on the Ribbon and click the **Dialog Box Launcher** in the Charts group.

   The Insert Chart dialog box appears.
2. Click the **Manage Templates** button.

   The Charts folder is displayed.
3. Right-click the template file and select **Delete**.

   The file is deleted.

Exercise

- **Exercise File:** Sales5-11 xlsx and Sales5-1 xlsx.
- **Exercise:** Save the chart in Sales5-11.xlsx as a template and name it "Net Income". Then open the Sales5-1 xlsx file and create a new chart using the saved template. Include the Income and Total Exp. data series in the new chart, but not the Net. Inc. series. Then delete the "Net Income" template.

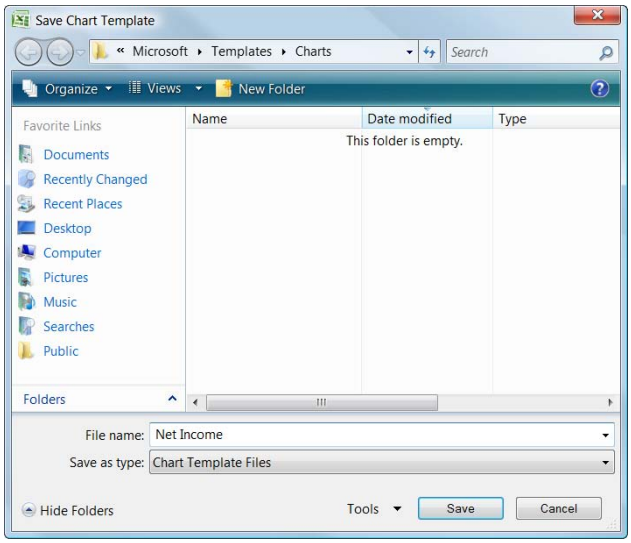


Figure 5-18: The Save Chart Template dialog box.

6

Managing Workbooks

Viewing a Workbook 88
Change workbook views 88
Zoom in or out of a worksheet 89

Working with the Workbook Window 90
Change window size 90
Create another workbook window 90

Splitting and Freezing a Workbook Window ... 91

Selecting Worksheets in a Workbook 93
Select a worksheet 93
Select multiple worksheets 93

Inserting and Deleting Worksheets 94

Renaming, Moving and Copying Worksheets 95
Move or copy a worksheet using click and drag 96

Working with Multiple Workbooks 97
Switch between workbook windows 97
View multiple workbooks at once 97

Hiding Rows, Columns, Worksheets and Windows 98

Protecting a Workbook 100
Protect an entire workbook 100
Protect workbook structure and windows 101

Protecting Worksheets and Worksheet Elements 102
Make cells editable in a protected worksheet 102
Make graphics editable in a protected worksheet 102
Hide formulas in a protected worksheet 103
Protect a worksheet 103

Sharing a Workbook 104
Share a workbook 104
Publish a workbook to a server 105
Fax or e-mail a workbook 105

Creating a Template 106

Once you start filling up a workbook with data, you'll find that it can be difficult to organize and view it all at once.

Luckily, Excel gives you several options for viewing and working with data and windows. You can split windows, insert new worksheets, copy worksheets, work with multiple workbooks at once, hide data, protect and share workbooks.

In this chapter, we'll look at ways to make viewing and working with data easier.

Using Exercise Files
This chapter suggests exercises to practice the topic of each lesson. There are two ways you may follow along with the exercise files:

- Open the exercise file for a lesson, perform the lesson exercise, and close the exercise file.
- Open the exercise file for a lesson, perform the lesson exercise, and keep the file open to perform the remaining lesson exercises for the chapter.

The exercises are written so that you may "build upon them", meaning the exercises in a chapter can be performed in succession from the first lesson to the last.

Viewing a Workbook

There are several ways to change how a workbook's contents are displayed on a screen using Workbook views. You can also zoom in or out to view more or less of a workbook at a time.

Change workbook views

1. Click the **View** tab on the Ribbon.

2. Click the button for the view you want to use in the Workbook Views group.

   The workbook's contents are shown in the selected view.

   Other Ways to Change Workbook View: Click the button for the view you want to use in the status bar of the workbook window.

   Excel offers several different workbook views.

   - **Normal view:** This is the default Excel view, and the one you'll usually want to use when creating and editing workbooks. Row and column headers are displayed.
   - **Page Layout view:** Use this view to fine-tune a worksheet before printing, especially if it contains charts. You can edit the worksheet like it's in Normal view, but you can also see the rulers, change page orientation, work with headers, footers and margins, and hide or display row or column headers.
   - **Page Break Preview view:** This view shows you where the page breaks will occur if you print the worksheet. This is helpful for making sure your data is laid out correctly to appear on the desired page(s).
   - **Full Screen view:** The worksheet stays in the view it was already in, but toolbars are hidden so that the worksheet fills the entire screen. To exit Full Screen view, click the **Restore Down** button on the Title bar.

Exercise

- **Exercise File:** Sales6-1 xlsx
- **Exercise:** View the worksheet in Excel's different views. Zoom in to 200 percent, zoom out to 75 percent, then zoom back in to 100 percent.

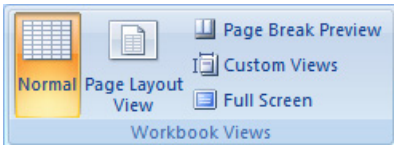
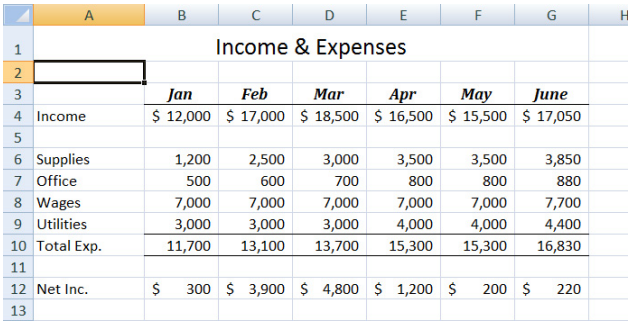
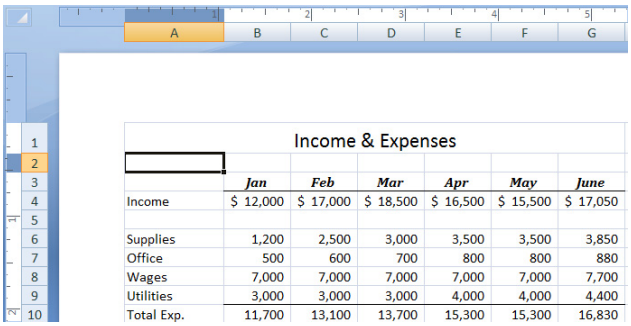


Figure 6-1: The Workbook Views group on the View tab.



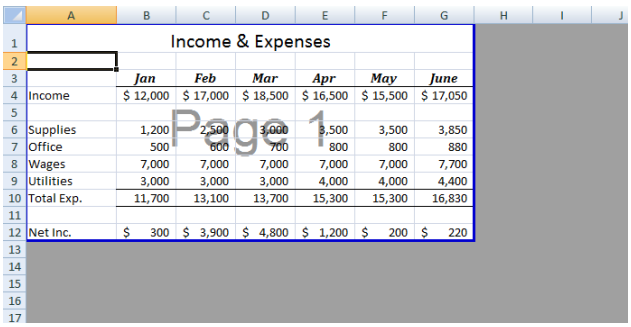
	A	B	C	D	E	F	G
1		Income & Expenses					
2							
3		*Jan*	*Feb*	*Mar*	*Apr*	*May*	*June*
4	Income	$ 12,000	$ 17,000	$ 18,500	$ 16,500	$ 15,500	$ 17,050
5							
6	Supplies	1,200	2,500	3,000	3,500	3,500	3,850
7	Office	500	600	700	800	800	880
8	Wages	7,000	7,000	7,000	7,000	7,000	7,700
9	Utilities	3,000	3,000	3,000	4,000	4,000	4,400
10	Total Exp.	11,700	13,100	13,700	15,300	15,300	16,830
11							
12	Net Inc.	$ 300	$ 3,900	$ 4,800	$ 1,200	$ 200	$ 220
13							

Normal view is the default Excel view. This view will be used most often.



	A	B	C	D	E	F	G
1							
2		Income & Expenses					
3							
4		*Jan*	*Feb*	*Mar*	*Apr*	*May*	*June*
5	Income	$ 12,000	$ 17,000	$ 18,500	$ 16,500	$ 15,500	$ 17,050
6							
7	Supplies	1,200	2,500	3,000	3,500	3,500	3,850
8	Office	500	600	700	800	800	880
9	Wages	7,000	7,000	7,000	7,000	7,000	7,700
10	Utilities	3,000	3,000	3,000	4,000	4,000	4,400
	Total Exp.	11,700	13,100	13,700	15,300	15,300	16,830

Page Layout view lets you fine-tune the worksheet before printing.



	A	B	C	D	E	F	G
1	Income & Expenses						
2							
3		*Jan*	*Feb*	*Mar*	*Apr*	*May*	*June*
4	Income	$ 12,000	$ 17,000	$ 18,500	$ 16,500	$ 15,500	$ 17,050
5							
6	Supplies	1,200	2,500	3,000	3,500	3,500	3,850
7	Office	500	600	700	800	800	880
8	Wages	7,000	7,000	7,000	7,000	7,000	7,700
9	Utilities	3,000	3,000	3,000	4,000	4,000	4,400
10	Total Exp.	11,700	13,100	13,700	15,300	15,300	16,830
11							
12	Net Inc.	$ 300	$ 3,900	$ 4,800	$ 1,200	$ 200	$ 220

Page Break view lets you view where the page will break if you print the worksheet.

Zoom in or out of a worksheet

Sometimes it is helpful to make a worksheet appear larger on the computer's screen, especially if you have a small monitor or poor eyesight. It can also be helpful to zoom out so that you can see how the whole worksheet looks.

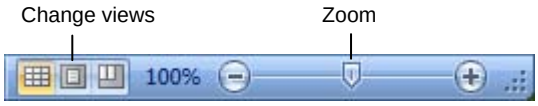


Figure 6-2: Select a view or adjust the Zoom slider in the status bar.

1. Click and drag the **Zoom** slider on the status bar to the percentage zoom setting you want.

   Other Ways to Zoom:
   Click the **View** tab on the Ribbon and click the **Zoom** button in the Zoom group. Or, click the **Zoom to Selection** button in the Zoom group to zoom in on the currently selected cell(s).

Create a custom view

Changing the print settings, zoom level, and workbook appearance every time you view or print a workbook can get old. By creating a custom view, you can save the view and print settings so you don't have to reapply them over and over.

1. Click the **View** tab on the Ribbon and click the **Custom Views** button in the Workbook Views group.

   The Custom Views dialog box appears.

2. Click the **Add** button and type a name for the view in the **Name** text box.

   There are two additional settings here:

   - **Print settings:** Saves print settings such as page breaks.
   - **Hidden rows, columns and filter settings:** Keeps columns and rows hidden and any applied filters filtered.

3. Select the settings you want to use in the view and click **OK**.

   Now your view settings are quickly accessible under the new custom view.

Tips

✓ To view a custom view, click the **View** tab on the Ribbon and click the **Custom Views** button in the Workbook Views group. Select the view you want to use and click **Show**.

Working with the Workbook Window

The Excel program itself, as well as each workbook you open in Excel, has its own window. Each window has its own features you can use to change how you work with the window on your Desktop.

Change window size

You can change the size of an Excel window to organize the space on your screen better. Following are some ways to change window size:

- **Maximize/Restore a Window:** When the workbook window is at its full size, click the **Restore Down** button on the title bar to reduce the window size. When the window appears in a smaller size, the same button appears as the **Maximize** button. Click it to maximize the window.

- **Minimize a Window:** Click the **Minimize** button on the title bar. Click the workbook's button on the Windows Taskbar to restore the window to the screen.

- **Resize a Window:** Click and drag the **resize control** in the lower-right corner of the window.

  Tip: You can also click the Maximize/Restore button or the Minimize button on the Ribbon (instead of on the title bar). This allows you to adjust the window for the active workbook only; the main Excel program window is unaffected.

Create another workbook window

You can view a workbook in more than one window at a time without creating a new workbook.

1. Click the **View** tab on the Ribbon and click the **New Window** button in the Window group.

   Another window opens with the workbook's contents.

Tips

- ✓ Viewing the same workbook in multiple windows does not create a new file. When a change is made to the workbook in one window, the change is reflected in all the windows for the workbook.
- ✓ Each instance of a workbook window is marked in the title bar. For example, if a new window was opened for Workbook 1, the two windows would be named Workbook 1:1 and Workbook 1:2.

Exercise

- **Exercise File:** Sales6-2 xlsx
- **Exercise:** Minimize, maximize, restore down and resize the workbook window. Then open a new window to view another instance of the workbook. Close the new window.

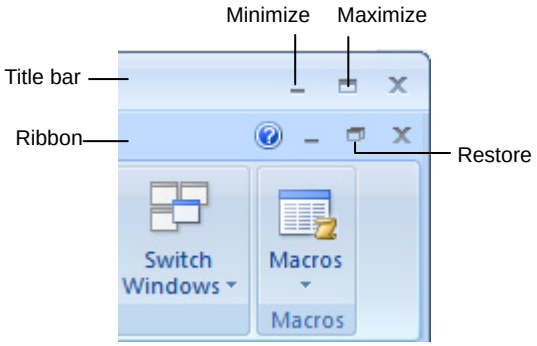


Figure 6-3: Buttons for changing window size.

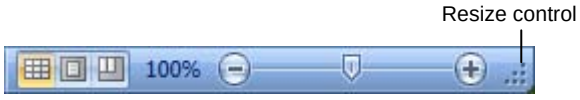


Figure 6-4: The resize control in the status bar.

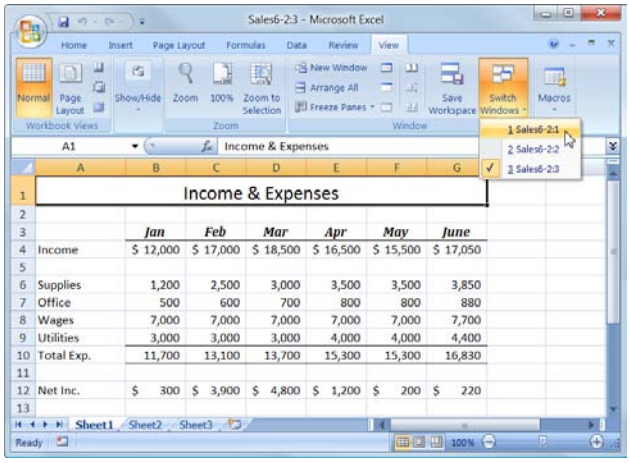


Figure 6-5: A workbook with multiple windows of the workbook open.

Splitting and Freezing a Workbook Window

Splitting or freezing a workbook window allows you to hold certain sections of a worksheet in place while scrolling to view other areas. It is especially useful if you are working with a large worksheet because you can lock column and row headings in place while scrolling through your data.

Split a worksheet window

When a worksheet window is split, you can make changes to the worksheet as you normally would and you can view multiple areas of a worksheet at once.

1. Select the cell where you want to split the window.

   The worksheet will be split above and to the left of the active cell, creating four panes—unless you select a cell in the top or bottom-most visible row or the left-most visible column, in which case the screen will be split into only two panes.

2. Click the **View** tab on the Ribbon and click the **Split** button in the Window group.

   The worksheet is split into sections that can be navigated individually without moving other sections.

   Tip: If you want to move the location of a split, you can click and drag the split line.

   When you no longer want the window to be split, remove the split.

3. Click the **Split** button in the Window group.

   The window is no longer split.

   Other Ways to Remove a Window Split: Click and drag the split line to the perimeter of the workbook area.

Freeze window panes

When you freeze panes, the panes above and to the left of the active cell are immobilized. This is different from splitting, in which each section can be navigated. Also, while you can move split lines, you can't move frozen sections without unfreezing and freezing again.

1. Click the **View** tab on the Ribbon and click the **Freeze Panes** button in the Window group.

   Here you have three options:

Exercise

- **Exercise File:** Sales6-3 xlsx
- **Exercise:** Select cell B4 and split the window into panes. Move the vertical and horizontal scroll bars in the panes on the right side. Remove the split. Keep cell B4 selected and freeze panes. Try moving the scroll bars, then unfreeze the panes.

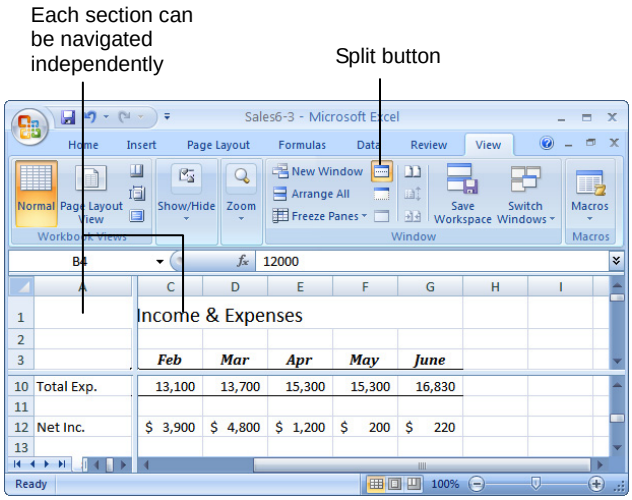


Figure 6-6: A split worksheet window.

- **Freeze Panes:** Freezes the worksheet above and to the left of the cell that is currently active. Creates two or four panes depending on location of the active cell.
- **Freeze Top Row:** Keeps the top row visible and allows you to scroll through the rest of the worksheet. Creates two panes.
- **Freeze First Column:** Keeps the first column visible and allows you to scroll through the rest of the worksheet. Creates two panes.

2. Select the option you want to use from the list.

The panes are frozen. You can use the scroll bars to move around in the worksheet.

Now let's unfreeze the panes.

3. Click the **Freeze Panes** button in the Window group and select **Unfreeze Panes**.

All cells in the worksheet are unfrozen so you can scroll freely throughout the entire worksheet.

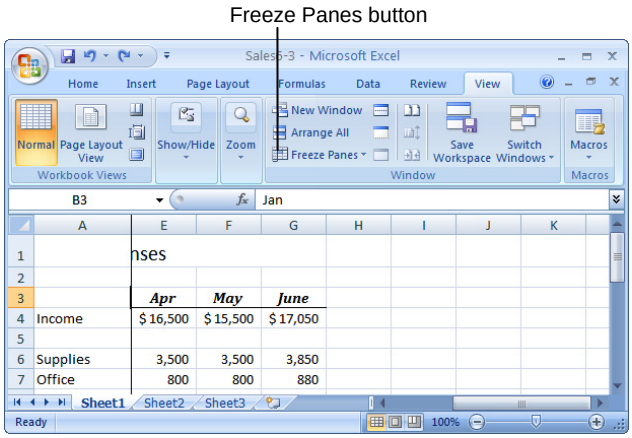


Figure 6-7: A worksheet with only the first column frozen.

Selecting Worksheets in a Workbook

By default, Excel workbooks contain three worksheets. You can make one worksheet active at a time or select multiple worksheets at once.

Select a worksheet

You can switch between worksheets in a workbook by selecting a different sheet's tab.

1. Click the sheet tab for the worksheet you want to display.

   That worksheet becomes active, allowing you to edit it.

   Other Ways to Select a Worksheet:
   Right-click the **tab scrolling** buttons and select the worksheet from the contextual menu. Or, use the **tab scrolling** buttons to scroll through the sheet tabs and then select one.

Select multiple worksheets

By selecting multiple worksheets at once, you can enter or edit data on multiple worksheets, as well as format or print multiple worksheets at once.

To select adjacent worksheets:

1. Click the first sheet tab you want to select, press and hold the **<Shift>** key and click the last tab you want to select.

   Both tabs and all tabs in between are selected.

To select non-adjacent worksheets:

1. Click the first sheet tab you want to select, press and hold the **<Ctrl>** key and click the other tabs you want to select.

To select all worksheets:

1. Right-click a sheet tab and select **Select All Sheets** from the contextual menu.

Tips

- ✓ When multiple worksheets are selected, [Group] appears in the title bar at the top of the worksheet.
- ✓ To cancel a selection of multiple worksheets in a workbook, click an unselected sheet's tab. Or, right-click a sheet tab that is selected and select **Ungroup Sheets** from the contextual menu.

Exercise

- **Exercise File:** Sales6-4 xlsx
- **Exercise:** Select Sheet2. Select Sheet1 and Sheet3 at the same time. Cancel the multiple sheet selection and select only Sheet1.

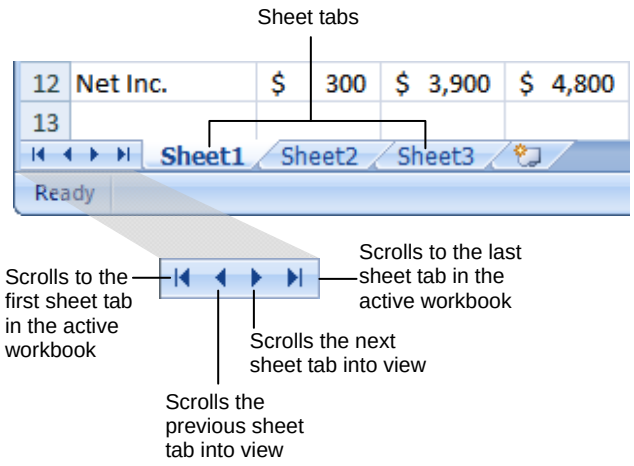

Sheet tabs
12 Net Inc. $ 300 $ 3,900 $ 4,800
13
Sheet1 Sheet2 Sheet3
Ready
Scrolls to the first sheet tab in the active workbook
Scrolls to the last sheet tab in the active workbook
Scrolls the next sheet tab into view
Scrolls the previous sheet tab into view

Figure 6-8: Sheet tabs and scrolling buttons.

Inserting and Deleting Worksheets

You can easily add worksheets to a workbook or delete unwanted ones.

Exercise

- **Exercise File:** Sales6-5 xlsx
- **Exercise:** Insert a new worksheet, then delete it.

Insert a worksheet

1. Click the **Insert Worksheet** tab.

   A new worksheet is added to the workbook.

   Tip: The Insert Worksheet tab is located next to the sheet tabs near the bottom of the workbook window.

   Other Ways to Insert a Worksheet: Press **<Shift>** + **<F11>**. Or, click the **Home** tab on the Ribbon and click the **Insert** list arrow in the Cells group. Select **Insert Sheet**. Or, right-click the tab of an existing worksheet, and select **Insert** from the contextual menu. Select **Worksheet** in the General tab of the Insert dialog box and click **OK**.

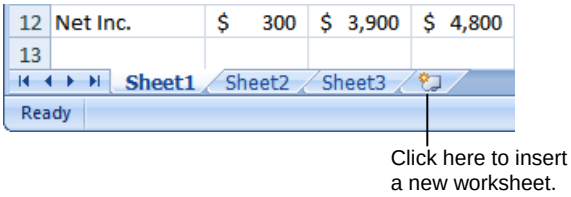


Figure 6-9: Inserting a worksheet.

Delete a worksheet

1. Right-click the sheet tab you want to delete and select **Delete** from the contextual menu.

   The worksheet is deleted.

   Other Ways to Delete a Worksheet: Select the worksheet you want to delete, click the **Home** tab on the Ribbon, click the **Delete** list arrow and select **Delete Sheet**.

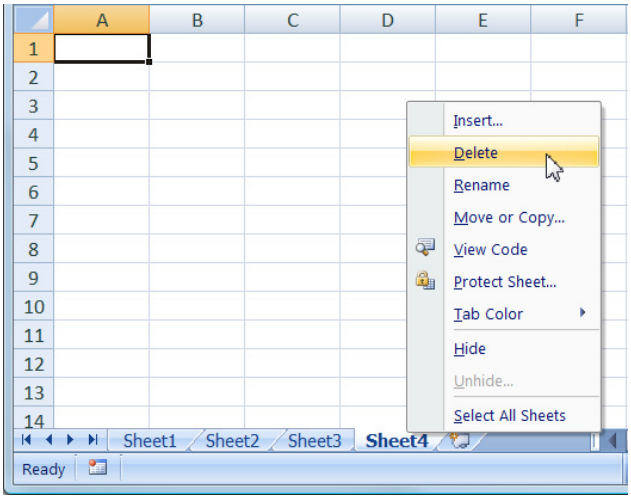


Figure 6-10: Deleting a worksheet from a workbook.

Renaming, Moving and Copying Worksheets

You can manipulate your workbooks by renaming worksheets and moving them into different orders and even into different workbooks.

Exercise

- **Exercise File:** Sales6-6 xlsx
- **Exercise:** Rename Sheet1 "Qtr 1&2".
  Make a copy of the Qtr 1&2 sheet between the Qtr 1&2 and Sheet2 tabs. Rename the copied sheet "Qtr 3&4."
  Change the month headings in the Qtr 3&4 sheet to Jul, Aug, Sep, Oct, Nov, Dec.

Rename a worksheet

By default, Excel worksheets are given the rather boring names Sheet1, Sheet2, Sheet3, and so on. You can give them more meaningful names.

1. Double-click the **sheet tab**.

   The sheet name is selected so that it can be renamed.

2. Type a new name for the worksheet.

3. Press **<Enter>**.

   The sheet is renamed.

   Other Ways to Rename a Worksheet:
   Right-click the sheet tab, select **Rename** from the contextual menu, and type a new name. Or, select the worksheet you want to rename, click the **Home** tab on the Ribbon, click the **Format** button in the Cells group and select **Rename Sheet**. Type a new name.

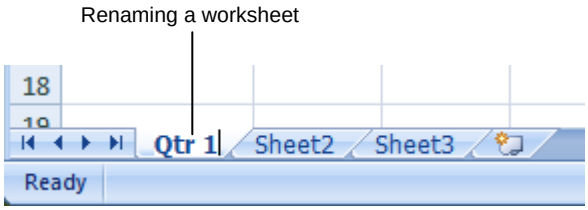


Figure 6-11: Renaming Sheet1 in a workbook.

Move or copy a worksheet

You can easily rearrange worksheets using the Move or Copy dialog box or by using the mouse.

1. Select the sheet tab(s) for the worksheet(s) you want to move or copy.

2. Right-click one of the sheet tabs you want to move or copy and select **Move or Copy** from the contextual menu.

   The Move or Copy dialog box appears.

   Other Ways to Move or Copy a Sheet:
   Select the sheet(s) you want to move or copy. Click the **Home** tab on the Ribbon and click the **Format** button in the Cells group. Select **Move or Copy Sheet** from the list.

3. Select the sheet after which you want your moved or copied sheet(s) to appear in the Before Sheet list.

   The moved or copied sheet will be placed in front of the sheet that is selected.

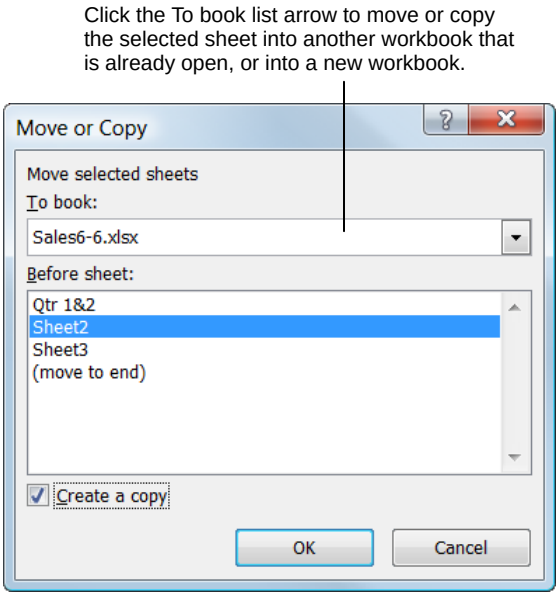


Figure 6-12: The Move or Copy dialog box.

4. (Optional) Click the **Create a copy** check box to copy the selected sheet.

   If this box is checkmarked, the worksheet(s) will be copied to the new location, instead of simply being moved.

5. Click **OK**.

   The worksheet(s) are moved or copied to the new location.

Move or copy a worksheet using click and drag

The easiest way to move or copy a worksheet within a workbook is with the mouse.

1. Select the sheet you want to move or copy.

2. Click and drag the sheet tab to move it to a new location in the workbook. Or, press and hold the **<Ctrl>** key while you click and drag the sheet tab to copy the sheet.

Tips

- ✓ To change the color of a sheet tab, right-click the tab, point to **Tab Color** and select a color from the palette.

Working with Multiple Workbooks

This lesson explains how to view and work with more than one workbook at a time.

Switch between workbook windows

If you have more than one workbook open, you can quickly switch between the workbooks.

1. Click a workbook's button in the Windows Task bar to view it.

   Other Ways to Switch Between Workbooks: Click the **View** tab on the Ribbon and click the **Switch Windows** button in the Window group. Select the workbook you want to view from the list.

   The selected document window becomes the active document.

View multiple workbooks at once

1. Click the **View** tab on the Ribbon and click the **Arrange All** button in the Window group.

   The Arrange Windows dialog box appears, allowing you to arrange the open workbooks in Tiled, Horizontal, Vertical, or Cascade order.

2. Select the option you want to use.

   Other Ways to View Multiple Workbooks: Click the **View** tab on the Ribbon and click the **View Side By Side** button in the Window group. If the Compare Side by Side dialog box appears, select the workbook you want to display alongside the active workbook and click **OK**.

Tips

- ✓ When the Compare Side by Side feature is activated, synchronous scrolling makes it possible for the two workbooks to scroll together at the same time. Click the **Synchronous Scrolling** button to turn this feature on and off. Click the **Reset Window Position** button to make the windows share the screen equally.
- ✓ Click the **Save Workspace** button in the Window group to save the layout of the open windows for future access.

Exercise

- **Exercise File:** Sales6-7 xlsx and SalesDetail6-7.xlsx
- **Exercise:** Switch between the open workbooks.
  View the workbooks side-by-side.
  Close the SalesDetail6-7 workbook.

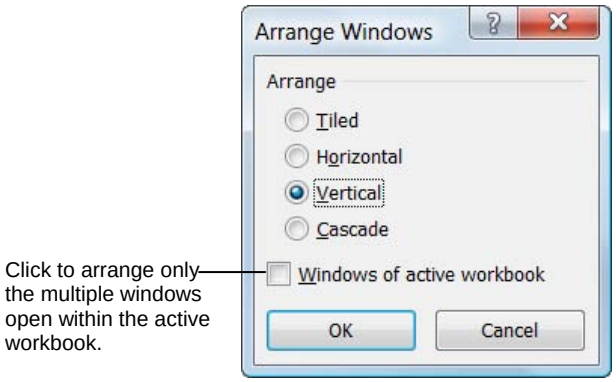


Figure 6-13: The Arrange Windows dialog box.

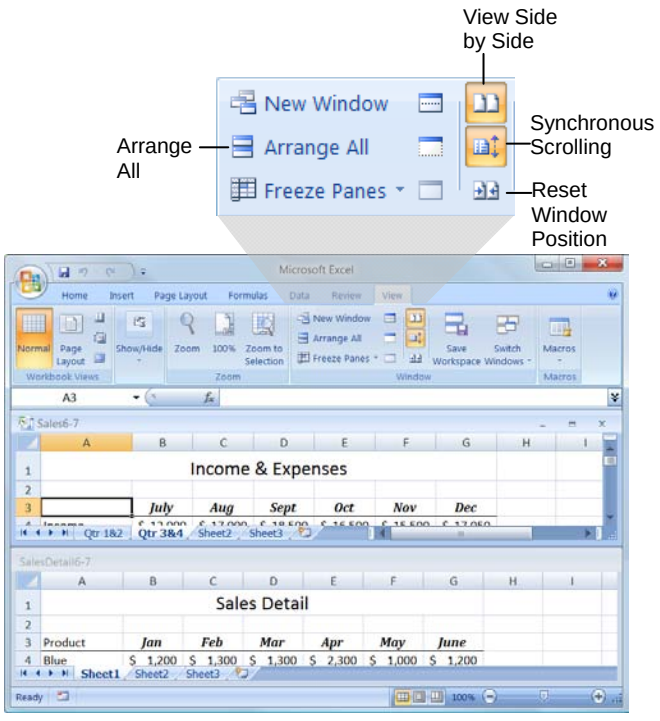


Figure 6-14: Two workbooks arranged side by side.

Hiding Rows, Columns, Worksheets and Windows

You can hide rows, columns, worksheets and entire workbook windows from view. Data isn't deleted, but simply hidden from view until you unhide it.

Hide or unhide a row or column

You can easily hide whole rows or columns from view.

1. Select the row or column heading(s) for the row(s) or column(s) you want to hide.

2. Right-click the heading and select **Hide** from the contextual menu.

   The row(s) or column(s) are hidden.

   Other Ways to Hide a Row or Column: Select the row or column heading(s) for the row(s) or column(s) you want to hide. On the Home tab, click the **Format** button in the Cells group. Point to **Hide & Unhide** and select **Hide Rows** or **Hide Columns**.

   Now let's look at how to unhide rows and columns.

3. Select the row or column heading(s) on both sides of the hidden row(s) or column(s).

   For example, if columns C and D were hidden, you would select the B and E column headings.

4. Right-click the heading and select **Unhide** from the contextual menu.

   Other Ways to Unhide a Row or Column: Select the row or column heading(s) on both sides of the hidden row(s) or column(s). On the Home tab, click the **Format** button in the Cells group. Point to **Hide & Unhide** and select **Unhide Rows** or **Unhide Columns**.

Hide or unhide a worksheet

Sometimes you may want to hide an entire worksheet.

1. Right-click the sheet tab for the worksheet you want to hide.

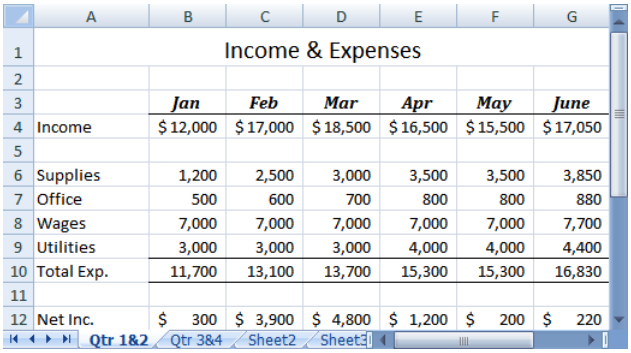
2. Select **Hide** from the contextual menu.

   The sheet is hidden. It still exists in the workbook so any references to the sheet will still work.

   Now let's unhide the sheet.

Exercise

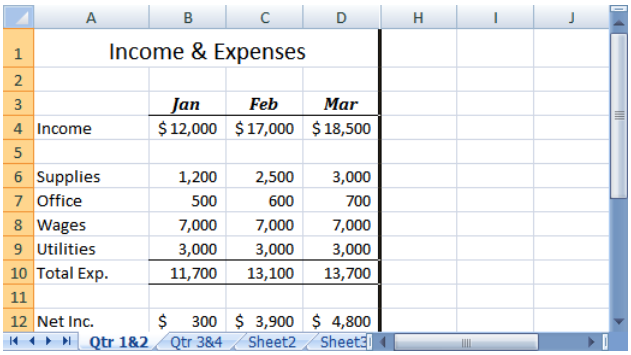
- **Exercise File:** Sales6-8 xlsx
- **Exercise:** Hide columns E – G on the Qtr 1&2 tab, then unhide them. Hide the Qtr 3&4 worksheet, then unhide it. Delete the Qtr 3&4 worksheet.
  Hide the Sales6-8 workbook window, then unhide it.



	A	B	C	D	E	F	G
1	Income & Expenses						
2							
3		*Jan*	*Feb*	*Mar*	*Apr*	*May*	*June*
4	Income	$ 12,000	$ 17,000	$ 18,500	$ 16,500	$ 15,500	$ 17,050
5							
6	Supplies	1,200	2,500	3,000	3,500	3,500	3,850
7	Office	500	600	700	800	800	880
8	Wages	7,000	7,000	7,000	7,000	7,000	7,700
9	Utilities	3,000	3,000	3,000	4,000	4,000	4,400
10	Total Exp.	11,700	13,100	13,700	15,300	15,300	16,830
11							
12	Net Inc.	$ 300	$ 3,900	$ 4,800	$ 1,200	$ 200	$ 220

Qtr 1&2 | Qtr 3&4 | Sheet2 | Sheet3

All columns are visible.



	A	B	C	D	H	I	J
1	Income & Expenses						
2							
3		*Jan*	*Feb*	*Mar*			
4	Income	$ 12,000	$ 17,000	$ 18,500			
5							
6	Supplies	1,200	2,500	3,000			
7	Office	500	600	700			
8	Wages	7,000	7,000	7,000			
9	Utilities	3,000	3,000	3,000			
10	Total Exp.	11,700	13,100	13,700			
11							
12	Net Inc.	$ 300	$ 3,900	$ 4,800			

Qtr 1&2 | Qtr 3&4 | Sheet2 | Sheet3

Columns E, F and G are hidden.

Figure 6-15: A worksheet before and after hiding columns.

3. Right-click any sheet tab and select **Unhide** from the contextual menu.

   The Unhide dialog box appears.

4. Select the sheet you want to unhide and click **OK**.

   The sheet is unhidden.

   Other Ways to Hide and Unhide a Worksheet: Select the worksheet you want to hide. On the Home tab, click the **Format** button in the Cells group. Point to **Hide & Unhide** and select **Hide Sheet**. To unhide it, click the **Format** button in the Cells group, point to **Hide & Unhide**, and select **Unhide Sheet**. Click **OK**.

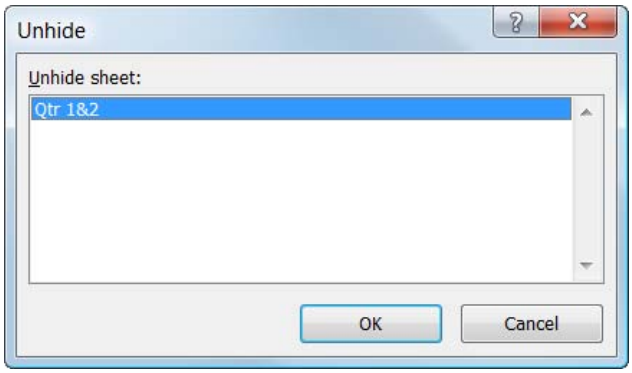


Figure 6-16: Selecting a hidden sheet to unhide.

Hide or unhide a workbook window

You can also hide the entire active workbook window.

1. Click the **View** tab on the Ribbon.

2. Click the **Hide Window** button in the Window group.

   The active window is hidden. The Excel program window remains open and active, but the workbook is hidden. It does not even appear in the Switch Windows button or on the Taskbar.

   Here's how to make the window reappear.

3. Click the **Unhide Window** button in the Window group.

   The window is unhidden.

   Tip: If there is more than one window hidden, the Unhide dialog box will appear. Select which window you want to unhide and click **OK**.

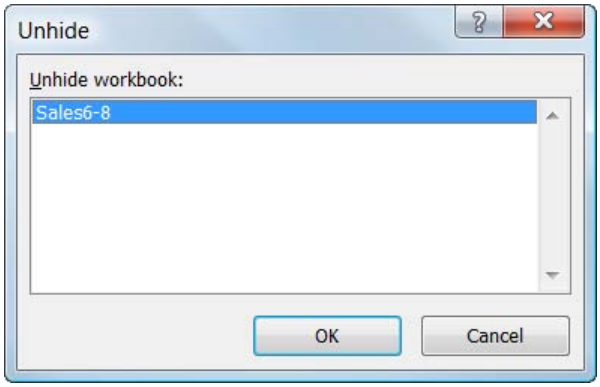


Figure 6-17: Selecting a hidden workbook to unhide.

Protecting a Workbook

You can protect entire workbooks from being viewed or modified, as well as protect the structure of workbooks and the position of workbook windows.

Protect an entire workbook

You can set a password so only authorized users can view or modify a workbook.

1. Open the workbook you want to protect.

2. Click the **Office Button**. Select **Save As**.

The Save As dialog box appears.

3. Click the **Tools** button and select **General Options**.

The General Options dialog box appears. There are two types of passwords you can create:

- **Password to open:** Enter a password here to require users to enter a password to view the workbook. This password is encrypted, making it more secure.
- **Password to modify:** Enter a password here to require users to enter a password to save changes to the workbook. This password is not encrypted.

You can enter just one or both passwords, depending on the type of protection you want for the workbook. Passwords are case-sensitive.

4. Enter passwords in the password text boxes, as desired, then click **OK**.

Tip: If you want Excel to suggest to users upon opening the workbook that they open it as a Read-only file—which means they can view the workbook but not save changes—select the **Read-only recommended** check box as well.

The Confirm Password dialog box appears.

5. Re-enter the password(s) and click **OK**.

You return to the Save As dialog box.

6. Click **Save**.

If you have previously saved the workbook, another dialog box will appear.

7. Click **Yes**.

The existing workbook that is not protected is replaced. From now on, Excel requires a password before opening the protected workbook.

Exercise

- **Exercise File:** Sales6-9 xlsx
- **Exercise:** Protect the workbook so that users must enter the password "Sales" to open it. Then set a password to protect the workbook's structure.
  Close the workbook and reopen it using the password.
  Remove the workbook password protection and unprotect the workbook's structure.

Figure 6-18: Setting workbook passwords in the General Options dialog box.

Confirm Password
Reenter password to proceed.
•••••
Caution: If you lose or forget the password, it cannot be recovered. It is advisable to keep a list of passwords and their corresponding workbook and sheet names in a safe place. (Remember that passwords are case-sensitive.)
OK
Cancel

Figure 6-19: The Confirm Password dialog box.

Other Ways to Encrypt a Workbook:
Click the **Office Button** and point to **Prepare**. Select **Encrypt Document**. Enter a password, then again to confirm. Click **OK**.

Tips

- ✓ To change or remove a password to open or modify a workbook, repeat the workbook protection steps and simply change or delete the password in the General Options dialog box.

Protect workbook structure and windows

You can secure a workbook's structure against changes, such as sheets being added or deleted. You can also protect a workbook's windows so that they are the same size and in the same position every time the workbook is opened.

1. Click the **Review** tab on the Ribbon and click the **Protect Workbook** button in the Changes group.

   The Protect Structure and Windows dialog box appears. Here you can select to protect workbook structure, windows, or both.

2. Select the option(s) you want to use and enter a password.

3. Click **OK**.

   The Confirm Password dialog box appears.

4. Enter the password again and click **OK**.

   The structure and/or windows of the workbook are protected.

Tip: To unprotect the workbook structure or windows, click the **Review** tab on the Ribbon and click the **Unprotect Workbook** button in the Changes group. Enter the password and click **OK**.

Tips

- ✓ Use passwords that combine upper and lowercase letters, numbers, and symbols.
- ✓ Make sure you remember the passwords to your workbooks because Microsoft can't help you if you forget.
- ✓ Besides protecting a workbook with a password, you can apply worksheet protection to individual worksheets and worksheet elements.

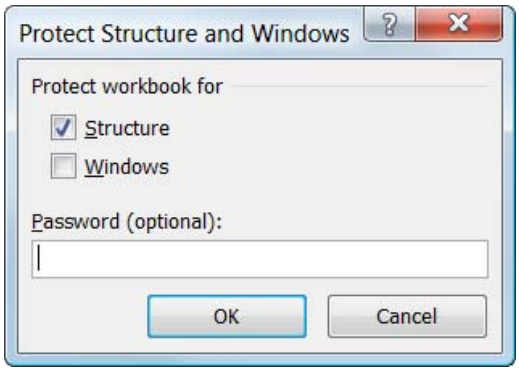


Figure 6-20: Setting passwords to protect workbook structure and windows in the Protect Structure and Windows dialog box.

Confirm Password
Reenter password to proceed.
Caution: If you lose or forget the password, it cannot be recovered. It is advisable to keep a list of passwords and their corresponding workbook and sheet names in a safe place. (Remember that passwords are case-sensitive.)
OK
Cancel

Figure 6-21: The Confirm Password dialog box.

Protecting Worksheets and Worksheet Elements

You can prevent unauthorized changes to your data by protecting worksheets. In a protected worksheet, none of its contents—cells or other elements—can be changed. However, you can prepare the worksheet so that certain cells and elements can be changed after it is protected.

Make cells editable in a protected worksheet

If there are cells that you want users to be able to change in a protected worksheet, you need prepare the worksheet by *unlocking* the cells.

1. Display the worksheet you want to protect.

   By default, all cells in the worksheet will be locked when the worksheet is protected. Unlock the cells that you want to edit and change after the worksheet is protected.

2. Select cells that you want to remain editable after you have protected the sheet.

   Now unlock the cells.

3. Click the **Home** tab on the Ribbon, click the **Format** button in the Cells group.

   Notice that "Lock Cell" near the bottom of the list is highlighted. This indicates that the cells are ready to be locked once the sheet is protected. Unlock the cells so they are editable.

4. Select **Lock Cell**.

   Now when you protect the sheet, the cell range won't be locked.

   Tip: Locking and unlocking cells only takes effect once the sheet is protected.

   Other Ways to Unlock/Lock Cells: Select the desired cell(s), click the **Home** tab on the Ribbon, click the **Format** button in the Cells group and select **Format Cells**. Click the **Protection** tab. Remove the check mark from the **Locked** option and click **OK**.

Make graphics editable in a protected worksheet

Before protecting the worksheet, you should also unlock any graphic objects that you will want users to be able to modify.

Exercise

- **Exercise File:** Sales6-10 xlsx
- **Exercise:** Unlock the cell range B4:G9. Protect the worksheet, but don't enter a password. Try to type in cell B3. Change cell B4 to $14,000. Unprotect the worksheet.

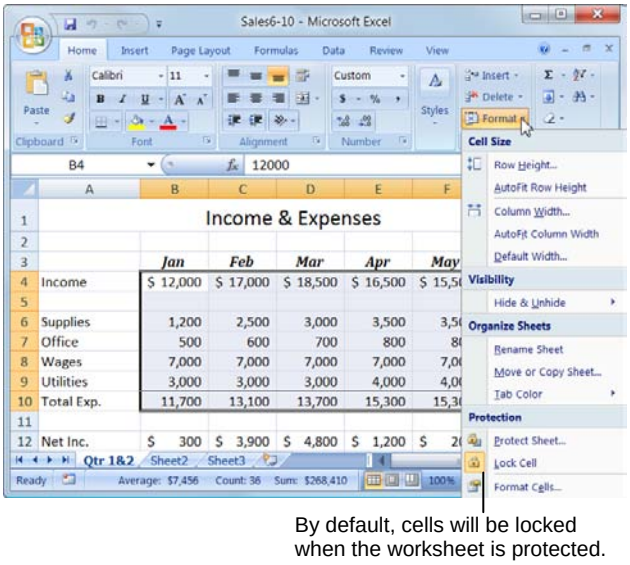


Figure 6-22: Preparing cells so they are editable when the worksheet is protected.

1. Select each object that you want to remain unlocked after you have protected the sheet.

   The Drawing Tools contextual tab appears.

2. Under Drawing Tools on the Ribbon, click the **Format** tab and click the **Dialog Box Launcher** in the Size group.

3. Click the **Properties** tab and uncheck the **Locked** and **Lock text** options, as desired. Click **Close**.

Hide formulas in a protected worksheet

You can also prevent certain formulas from being displayed once the worksheet has been protected.

1. Select the cells containing formulas you want hidden.

2. Click the **Home** tab on the Ribbon, click the **Format** button in the Cells group and select **Format Cells**.

   The Format Cells dialog box appears.

3. Click the **Protection** tab, select the **Hidden** option and click **OK**.

   Remember that you still need to protect the worksheet for the formulas to be hidden.

Protect a worksheet

Once you've finished preparing the worksheet, you're ready to protect the worksheet.

1. Click the **Review** tab on the Ribbon and click the **Protect Sheet** button in the Changes group.

   The Protect Sheet dialog box appears.

   Other Ways to Protect the Sheet:
   Right-click the sheet tab and select **Protect Sheet** from the contextual menu.

2. Enter a password in the text box.

   You don't have to enter a password in order to protect the worksheet, but if you don't, anyone can unprotect the sheet.

3. Select the items that you want users to be able to change in the "Allow all users of this worksheet to:" list and click **OK**.

   The worksheet is protected.

   Tip: To unprotect a worksheet, right-click the sheet tab and select **Unprotect Sheet** from the contextual menu.

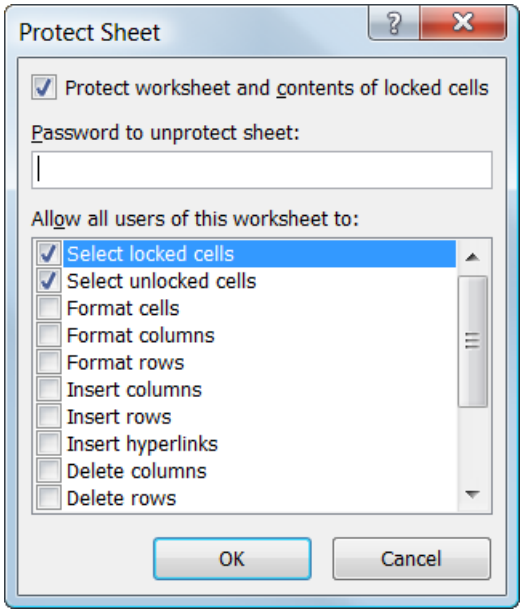


Figure 6-23: The Protect Sheet dialog box.

Sharing a Workbook

You can share your Excel workbook files with other people, so that you can work on the data collaboratively. Sharing a workbook has several benefits:

- Several people can use the same shared workbook simultaneously.
- Excel keeps track of any changes made to a shared workbook, when they were made, and who made them.
- You can review and accept or reject any changes made to a shared workbook.

You can also fax or e-mail copies of a workbook to other people.

Exercise

- **Exercise File:** Sales6-11 xlsx
- **Exercise:** Share the workbook file on your network, then remove the file share.

Share a workbook

You can share a workbook on a network where users can simultaneously modify it. This is very useful for collaboration.

Trap: Some features— merged cells, charts, graphics, conditional formats, macros, PivotTable reports, hyperlinks, and worksheet protection— can't be modified in a shared workbook.

1. Click the **Review** tab on the Ribbon and click the **Share Workbook** button in the Changes group.

   The Share Workbook dialog box appears.

2. Click the **Allow changes by more than one user at the same time** check box (if it is not already selected). Click **OK**.

   The workbook is now ready to be shared. All you have to do is save the workbook in a location that is accessible to other people.

3. Make sure you save the workbook where it is accessible to other users (i.e. a shared folder on a network drive).

   Now that the workbook is shared, you or other users can track any changes made to the workbook.

Other Ways to Share a Workbook on a Network:
Click the **Review** tab on the Ribbon and click the **Protect and Share Workbook** button. Select the **Sharing with track changes** option, enter a password, and click **OK**. The workbook is shared and users are not able to turn off the Change Tracking feature.

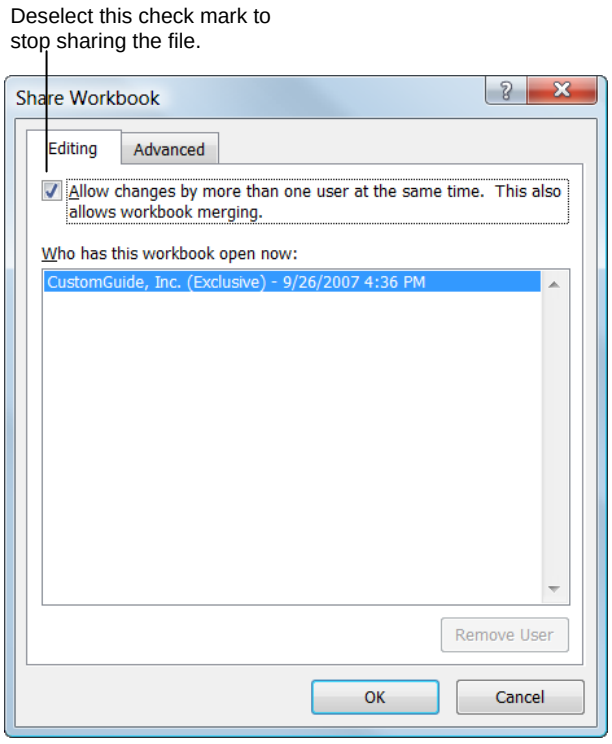

Deselect this check mark to stop sharing the file.
Share Workbook
Editing
Advanced
Allow changes by more than one user at the same time. This also allows workbook merging.
Who has this workbook open now:
CustomGuide, Inc. (Exclusive) - 9/26/2007 4:36 PM
Remove User
OK
Cancel

Figure 6-24: The Share Workbook dialog box.

Tips

- ✓ Every time you save a shared workbook, you will be prompted with changes made by other users since the last time you saved it.
- ✓ Deselect the **Allow changes by more than one user at the same time** option to stop sharing the file.

Publish a workbook to a server

1. Click the **Office Button** and point to **Publish**.

   Three publishing options appear:

   - **Excel Services:** Allows you to share a workbook or parts of a workbook in a Microsoft Office Excel Web Access browser. Excel Services requires a server running Microsoft Office SharePoint Server 2007 that is capable of running Excel Calculation Services.
   - **Document Management Server:** Allows you to make workbooks available for access on a document management server where users can check them in and out.
   - **Create Document Workspace:** If you use Microsoft Windows SharePoint Services 3.0, you can make workbooks available on a shared site and synchronize the server copy with your local copy of the workbook.

2. Select the publishing option you want to use and follow the instructions to publish the workbook.

If the Excel Services option is unavailable, your version of Office Excel 2007 does not support publishing a workbook to Excel Services.

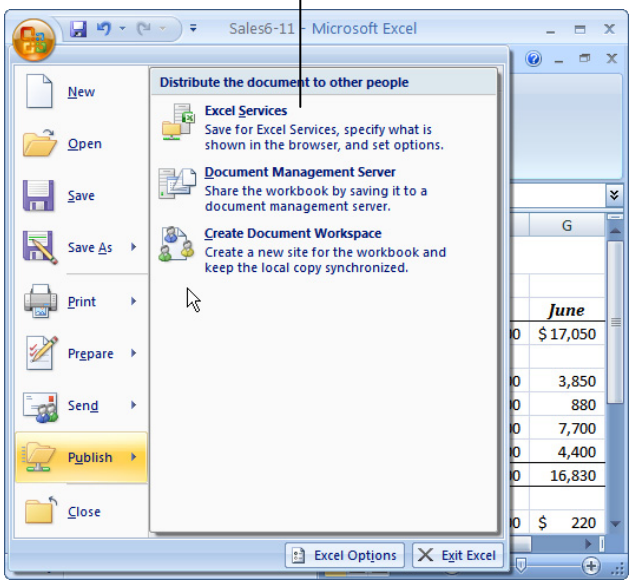


Figure 6-25: Options for publishing a workbook.

Fax or e-mail a workbook

You can also share a workbook by faxing or e-mailing it.

1. Click the **Office Button** and point to **Send**.

   Four send options appear:

   - **E-mail:** Your e-mail program opens and the workbook is included as an attachment.
   - **E-mail as PDF Attachment:** Your e-mail program opens and the workbook is included a PDF attachment to the message.
   - **E-mail as XPS Attachment:** Your e-mail program opens and the workbook is included as an XPS attachment to the message.
   - **Internet Fax:** Complete sending the fax through your Internet Service Provider. If you don't have one, a message appears.

2. Select the send option you want to use and finish the process to e-mail or fax the workbook.

Creating a Template

If you find yourself recreating the same type of workbook over and over, you can save yourself some time by using a template. A *template* is a workbook that contains labels, formulas, formatting, and macros you use frequently. Once you have created a template you can use it to create new workbooks.

1. Create or open a workbook to use as a template.

2. Click the **Office Button** and select **Save As**.

The Save As dialog box appears.

There are three basic types of templates you can create:

Excel Template: This is the standard Excel 2007 template that works with XML.

Excel Macro-Enabled Template: This type of template is the standard template but is enabled to work with XML.

Excel 97-2003 Template: Use this to create workbooks that are compatible with earlier versions of Excel. These files are not XML compatible.

3. Click the **Save as type** list arrow and select the type of template you want to create.

Once you change the file type to a template, the location automatically changes to the Templates folder.

4. Enter a name for the template in the File name text box.

5. Click the **Save** button.

The template is saved. Now you can use the template to create new workbooks.

Exercise

- **Exercise File:** Sales6-12 xlsx
- **Exercise:** Save the file as an Excel Template and name it "Sales Template".

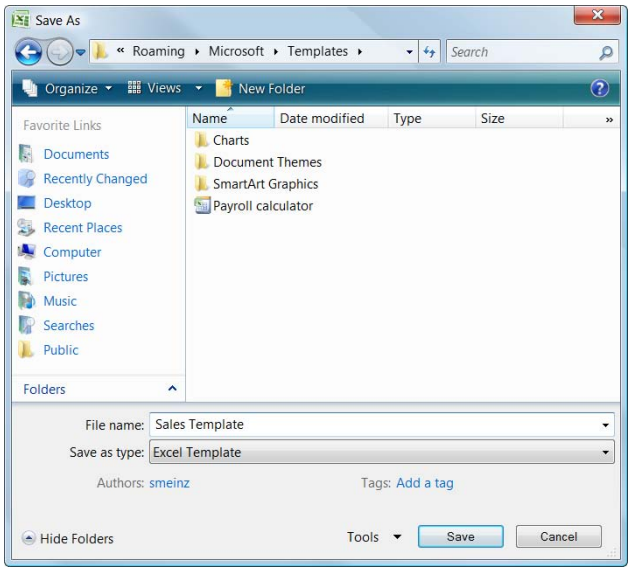


Figure 6-26: Saving a workbook as an Excel Template.

7

Working with Page Layout and Printing

Creating Headers and Footers 108
Create a basic header or footer 108
Use Auto Headers & Footers 108
Insert Header & Footer Elements 109

Using Page Breaks 110
Page Break Preview view 110
Move a page break 110
Insert a manual page break 110
Remove a page break 111

Adjusting Margins and Orientation 112

Adjusting Size and Scale 113
Adjust paper size 113
Scale to fit 113

Adding Print Titles, Gridlines and Headings 114

Advanced Printing Options 116
Set print area 116
Print dialog box 116
Print multiple worksheets 117
Print multiple workbooks 117

Sometimes you need to do more than just print your worksheet. You may want to add a header or footer or page breaks, adjust the margins, print worksheet headings, or print only a certain part of a worksheet. This chapter will help you with these, as well as several other page-layout and printing tasks.

Using Exercise Files

This chapter suggests exercises to practice the topic of each lesson. There are two ways you may follow along with the exercise files:

- Open the exercise file for a lesson, perform the lesson exercise, and close the exercise file.
- Open the exercise file for a lesson, perform the lesson exercise, and keep the file open to perform the remaining lesson exercises for the chapter.

The exercises are written so that you may "build upon them", meaning the exercises in a chapter can be performed in succession from the first lesson to the last.

Creating Headers and Footers

You can use a header to include the same information at the top of every printed page, or a footer to include information at the bottom of every page. You can enter your own headers or footers, insert built-in ones, or insert specific elements such as pictures or page numbers.

Create a basic header or footer

1. Click the **Insert** tab on the Ribbon and click the **Header & Footer** button in the Text group.

   The workbook automatically switches to Page Layout View and the cursor appears in the header area.

   The header and footer areas are split into three sections—left, right, and center. Click any of the sections to enter text in that section.

   Tip: Enter your note here. To work with the footer instead of the header, click the **Click to add footer** text at the bottom of the worksheet or click the **Go To Footer** button in the Navigation group on the Design tab.

2. Enter header text, then click away from the header area.

   When you are finished working with the header and footer, you can return to Normal view.

   Other Ways to Create a Header or Footer: Click the **View** tab on the Ribbon and click the **Page Layout View** button in the Workbook Views group. Click in the header or footer area.

Use Auto Headers & Footers

Instead of entering your own header or footer text or fields, use built-in options that are already available.

1. Click the **Insert** tab on the Ribbon and click the **Header & Footer** button in the Text group.

   Now you can add an auto header or footer.

2. Click either the **Header** or **Footer** button in the Header & Footer group on the Design tab.

   Here you will see a list of many different types of page numbers, titles, dates, and file paths that can be added.

3. Select the auto header or footer you want to use.

   It is automatically inserted into the worksheet. Any manual header or footer information you have previously entered is replaced.

Exercise

- **Exercise File:** Sales7-1 xlsx
- **Exercise:** Open the header and add “Monthly Sales” in the center section.
  Add a page number field in the right section of the header.

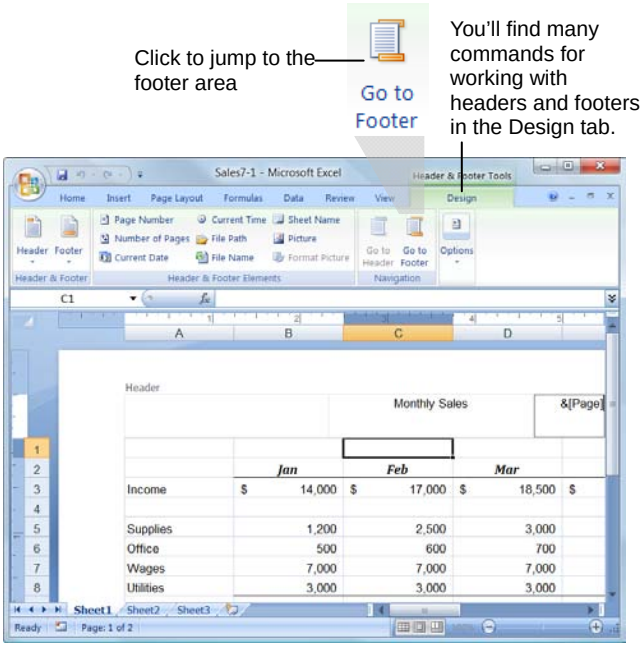


Figure 7-1: Adding header text.

Insert Header & Footer Elements

You can also insert individual elements into the header or footer such as pictures or page numbers.

1. Click the **Insert** tab on the Ribbon and click the **Header & Footer** button in the Text group.

   The Header & Footer Elements group appears on the Design tab, displaying commands to add several different elements to your header or footer.

2. Click the button in the Header & Footer Elements group for the element you want to add.

Tips

- ✓ Headers and footers can be formatted using the commands in the Font group on the Home tab.
- ✓ You can also work with headers and footers by using the Page Setup dialog box. Click the **Page Layout** tab and click the **Dialog Box Launcher** in the **Page Setup** group. Click the **Header/Footer** tab. Here you can edit headers and footers and select to withhold the header or footer from the first page or to designate different odd and even pages.

Table 7-1: Header & Footer Elements Group

Button	Description
Page Number	Displays the correct page number for each page.
Number of Pages	Displays the total number of pages in the worksheet.
Current Date	Displays the current date.
Current Time	Displays the current time of day.
File Path	Displays the workbook's name and file path.
File Name	Displays the workbook's name.
Sheet Name	Display's the worksheet's name.
Picture	Opens the Insert Picture dialog box, where you can browse for and insert a picture file.
Format Picture	Is only available once a picture has been inserted; this button allows you to adjust the picture's size, brightness or contrast.

Using Page Breaks

You can use page breaks to divide a worksheet into separate pages for printing. Excel automatically breaks the page based on the margins and other page settings, but you can add your own manual page breaks as well.

Page Break Preview view

If you display the worksheet in Page Break Preview view, you can see how the page breaks will appear and adjust them.

1. Click the **View** tab on the Ribbon and click the **Page Break Preview** button in the Workbook Views group.

   Other Ways to Open Page Break Preview View:
   Click the **Page Break Preview** button on the status bar.

   The worksheet appears in Page Break Preview view. Dashed lines indicate automatic page breaks, while solid lines represent page breaks that have been changed or added.

   Tip: The first time you enter Page Break Preview, a message appears with instructions on how to work with page breaks.

Move a page break

You can move a page break in Page Break Preview view.

1. Position the mouse pointer over the page break line so the cursor changes ↔.

2. Click and drag the page break to a new location.

   The dashed line turns into a solid line, indicating the break has been changed.

Insert a manual page break

You can insert new vertical and horizontal page breaks in the workbook.

1. Right-click the cell below or to the right of where you want to insert the page break.

   A contextual menu and the Mini Toolbar appear.

   It can be a little confusing to figure out which cell to click to insert a certain type of page break. See Table 7-2: Inserting Page Breaks for more information on where to click.

2. Select **Insert Page Break** from the contextual menu.

   The break is inserted.

Exercise

- **Exercise File:** Sales7-2 xlsx
- **Exercise:** In Page Break Preview view, drag the page break line to the left so that the Jan – Mar columns are on page 1 and Apr – June are on page 2.
  Right-click cell A11 and add a page break, then remove the break.

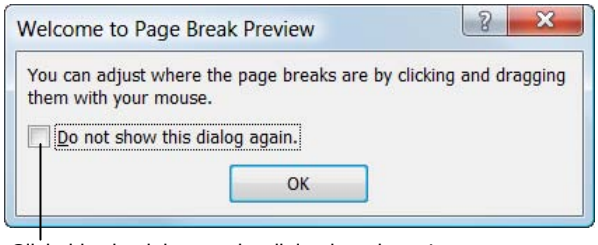

Welcome to Page Break Preview
You can adjust where the page breaks are by clicking and dragging them with your mouse.
Do not show this dialog again.
OK
Click this check box so the dialog box doesn't appear whenever you use Page Break Preview.

Figure 7-2: This dialog box appears the first time you open a workbook in Page Break Preview.

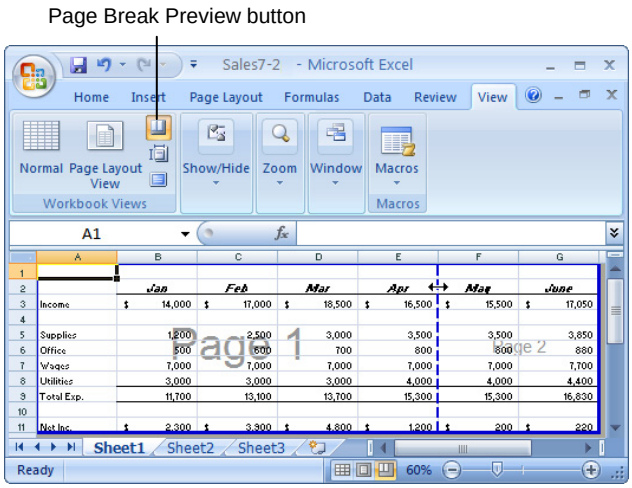


Figure 7-3: Moving a page break in Page Break Preview view.

Other Ways to Insert a Page Break:
Click the **Page Layout** tab on the Ribbon and click the **Breaks** button in the Page Setup group. Select **Insert Page Break** from the list.

Remove a page break

You can remove a page break that you no longer want.

1. Click and drag the page break line outside of the Page Break Preview area.

   The page break is removed.

   Other Ways to Remove a Page Break:
   Select the cell below or to the right of where you want to insert or remove a page break. Click the **Page Layout** tab on the Ribbon and click the **Breaks** button in the Page Setup group. Select **Remove Page Break**. Select **Reset All Page Breaks** to remove all page breaks.

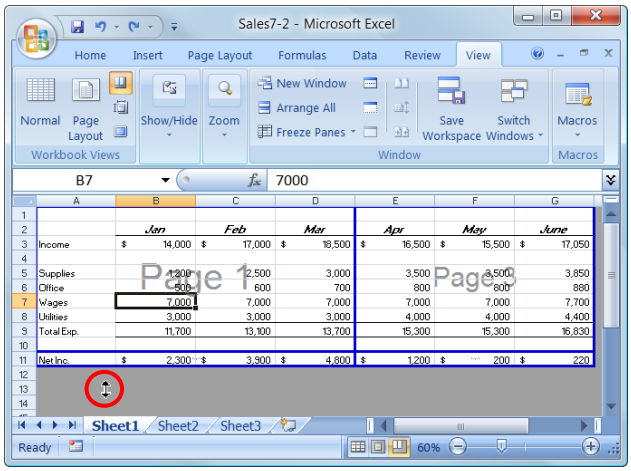


Figure 7-4: Click and drag a page break line outside of the Page Break Preview area, or into the gray area, to remove it.

Tips

- ✓ You can remove all manual page breaks in the worksheet at once. Right-click any cell and select **Reset All Page Breaks** from the contextual menu.

- ✓ When you're done working with page breaks you can return the worksheet to Normal view. Click the **Normal** icon on the status bar.

Table 7-2: Inserting Page Breaks

Page Break Type	Position the Cell Pointer Here
Horizontally	Select a cell in column A that is in the row below where you want the page break.
Vertically	Select a cell in Row 1 that is in the column to the right of where you want the page break.
Horizontally and Vertically	Select the cell below and to the right of where you want the page break.

Adjusting Margins and Orientation

You're probably already aware that margins are the empty space between the worksheet data and the left, right, top, and bottom edges of the printed page. In this lesson, you'll learn how to adjust a page's margins.

You'll also learn how to change the page orientation. Everything you print uses one of two different types of orientations: Portrait or Landscape. In Portrait orientation, the paper is taller than it is wide—like a painting of a person's portrait. In Landscape orientation, the paper is wider than it is tall—like a painting of a landscape.

Exercise

- **Exercise File:** Sales7-3 xlsx
- **Exercise:** In Page Layout View, apply Wide margins and Landscape orientation, then reapply Portrait orientation.

Adjust margins

By default, the margins in Excel 2007 worksheets are 0.75 inches at the top and bottom, and 0.70 inches to the left and right.

1. Click the **Page Layout** tab on the Ribbon and click the **Margins** button in the Page Setup group.

   A list of three margin options appears: Normal, Wide, or Narrow.

2. Select the margin size you want to use from the list.

   The margins adjust to the new setting.

   Tip: If you don't see a margin size you want to use, select **Custom Margins** to display the Margins tab of the Page Setup dialog box. Here you can set your own custom margins and even adjust the size of headers and footers.

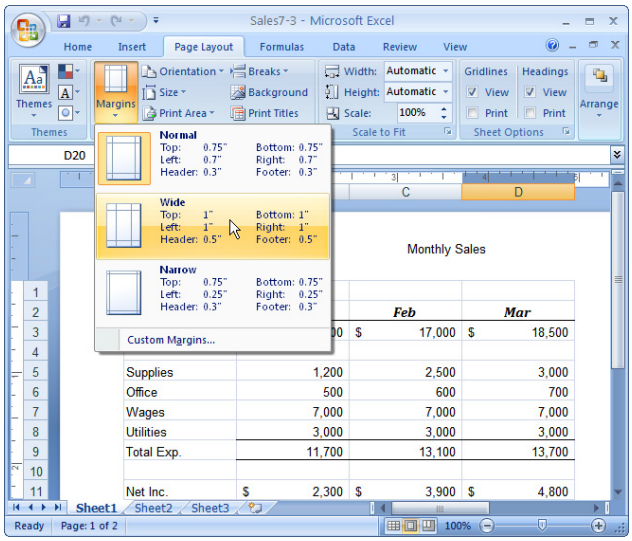


Figure 7-5: Adjusting margins.

Adjust orientation

Portrait orientation is the default setting for printing worksheets, but you may often want to use landscape orientation instead.

1. Click the **Page Layout** tab on the Ribbon and click the **Orientation** button in the Page Setup group.

   A list of two options appears:

   - **Portrait:** In Portrait orientation, the paper is taller than it is wide—like a portrait painting.
   - **Landscape:** In Landscape orientation, the paper is wider than it is tall—like a landscape painting.

2. Select the page orientation you want to use.

   The orientation changes.

Adjusting Size and Scale

If you plan to print a worksheet on paper that isn't Letter size, you'll need to select a different paper size in Excel. You can also adjust the scale of your printed worksheet so that the printed data stretches or shrinks to fit the number of pages you specify.

Adjust paper size

You can print Excel worksheets on many different sizes of paper.

1. Click the **Page Layout** tab on the Ribbon and click the **Size** button in the Page Setup group.

   A list of common page sizes appears.

2. Select the paper size you want to use from the list.

   The worksheet layout updates to the new paper size.

Scale to fit

You can tell Excel how many pages wide or tall you want the data to fit onto when printed.

1. Click the **Page Layout** tab on the Ribbon.

   The Scale to Fit group has three options you can choose from to adjust the worksheet's scale for printing:

   - **Width list arrow:** Select the maximum width—in number of pages—you want the printed data to occupy.
   - **Height list arrow:** Select the maximum height—in number of pages—you want the printed data to occupy.
   - **Scale percentage:** Enter a percentage or use the arrow buttons to stretch or shrink the printed output to a percentage of its actual size.

2. Select the scale command you want to use in the Scale to Fit group and adjust the scale as necessary.

   The worksheet is scaled to fit the new settings.

   Other Ways to Scale to Fit:
   Click the **Dialog Box Launcher** in the Scale to Fit group to display the Page tab in the Page Setup dialog box. Select the options you want to use in the Scaling area.

Exercise

- **Exercise File:** Sales7-4 xlsx
- **Exercise:** In Page Layout View, adjust the paper size to Legal.
  Change the scale so that the worksheet fits onto 1 page wide by 1 page tall. Do a print preview.
  Then change the scale back to automatic width and height and return the paper size to Letter.

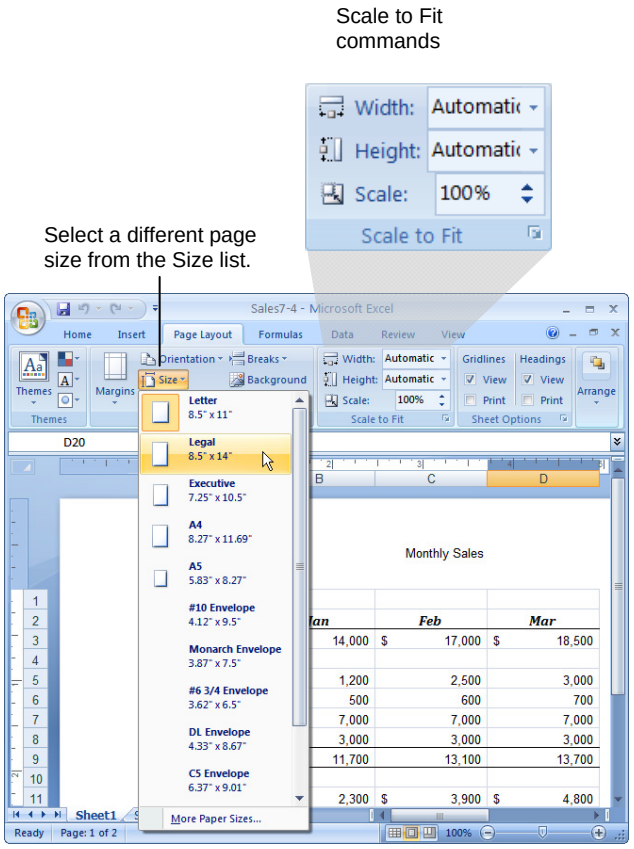


Figure 7-6: Adjusting paper size and scaling on a worksheet.

Adding Print Titles, Gridlines and Headings

You can specify rows and columns to repeat on each printed page. You can also select whether you want to view or print cell gridlines and row and column headings.

Exercise

- **Exercise File:** Sales7-5 xlsx
- **Exercise:** Use the Print Titles command to make column A repeat on every page.
  Set Sheet Options to display gridlines and headings when printing.

Print titles

The Print Titles command allows you to designate certain rows and columns to repeat on every printed page.

1. Click the **Page Layout** tab on the Ribbon and click the **Print Titles** button in the Page Setup group.

   The Page Setup dialog box appears, displaying the Sheet tab.

   In the Print titles area, there are two text boxes: "Rows to repeat at top" and "Columns to repeat at left." You can use the cell reference buttons next to the text boxes to select the ranges that contain the labels you want to repeat on every page.

2. Click the **Rows to repeat at top** or **Columns to repeat at left** cell reference button.

   The dialog box is minimized so you can see the spreadsheet and select the cells you want to repeat.

3. Select the rows or columns you want to appear on every printed page and click the **cell reference** button.

   The dialog box expands to its full size once again.

4. Click **OK**.

   Now when you print, the rows and/or columns you selected will appear on every page.

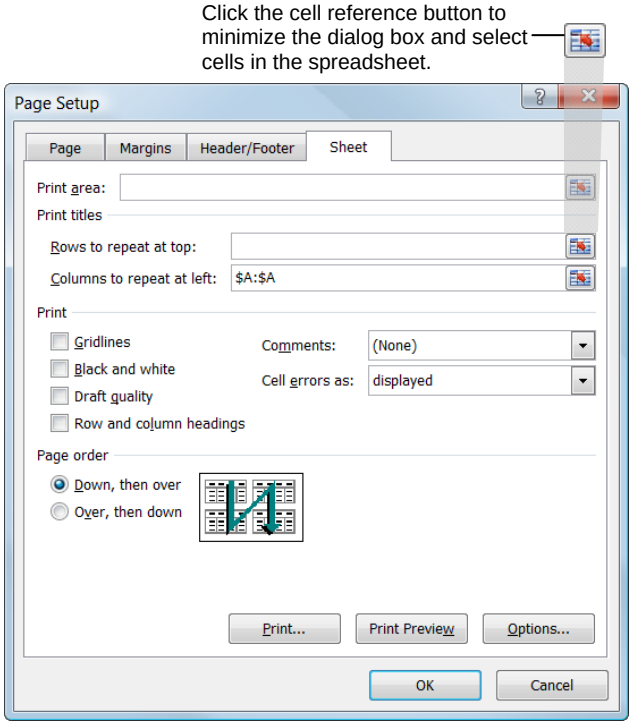


Figure 7-7: Adjusting print titles, gridlines and headings on the Sheet tab of the Page Setup dialog box.

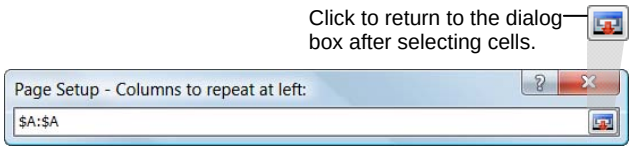


Figure 7-8: The collapsed Page Setup dialog box.

View or print gridlines and headings

You can also choose whether you want to view or print the worksheet cell gridlines or the column and row headings.

1. Click the **Page Layout** tab on the Ribbon.

   The Sheet Options group has commands for working with the gridlines and headings in a workbook.

   - **Gridlines:** The gridlines that appear in the spreadsheet to delineate each cell by default. Select the Print option to print the gridlines with the data.

- **Headings:** The column and row headings (A, B, C… and 1, 2, 3…) appear by default in the spreadsheet to help identify cells. Select the Print option so these headings are printed with the data.

2. Select the options you want to use in the Sheet Options group.

If you selected the Print check box for Gridlines or Headings, you can preview how the worksheet will print in Print Preview or Page Layout view.

Other Ways to Print Gridlines or Headings: Click the **Page Layout** tab on the Ribbon and click the **Dialog Box Launcher** in the Sheet Options group. Select the option you want to use in the Print area. Here you can even select a different printed page order ("Down, then over" or "Over, then down").

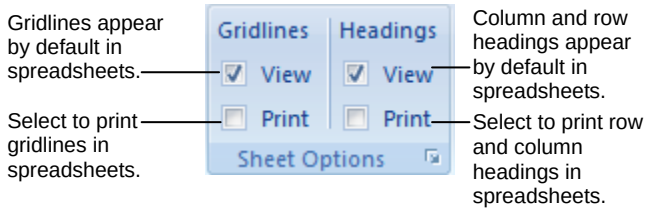
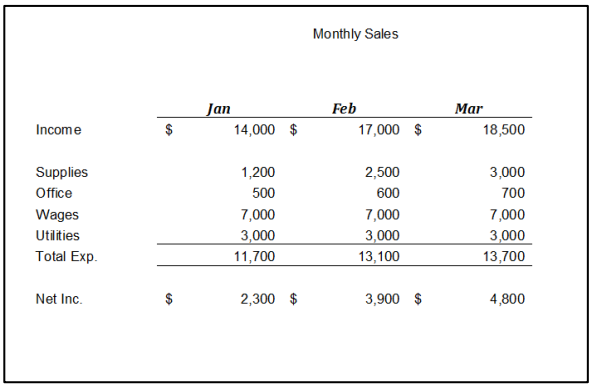


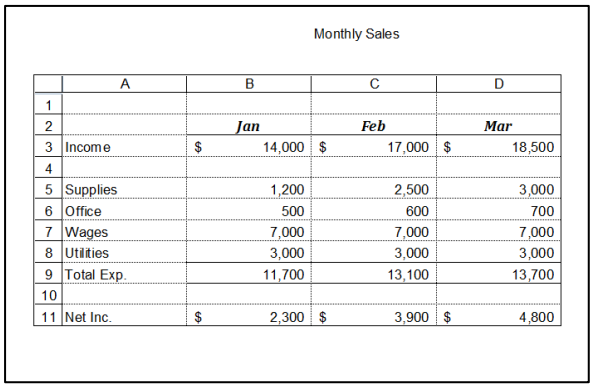
Figure 7-9: The Sheet Options group.



Monthly Sales

	Jan	Feb	Mar
Income	$ 14,000	$ 17,000	$ 18,500
Supplies	1,200	2,500	3,000
Office	500	600	700
Wages	7,000	7,000	7,000
Utilities	3,000	3,000	3,000
Total Exp.	11,700	13,100	13,700
Net Inc.	$ 2,300	$ 3,900	$ 4,800

This is a print preview of a worksheet without gridlines or headings displayed.



Monthly Sales

	A	B	C	D
1				
2		Jan	Feb	Mar
3	Income	$ 14,000	$ 17,000	$ 18,500
4				
5	Supplies	1,200	2,500	3,000
6	Office	500	600	700
7	Wages	7,000	7,000	7,000
8	Utilities	3,000	3,000	3,000
9	Total Exp.	11,700	13,100	13,700
10				
11	Net Inc.	$ 2,300	$ 3,900	$ 4,800

This is a print preview of a worksheet with gridlines and headings displayed.

Figure 7-10: Print previewing worksheets without and with gridlines and head

Advanced Printing Options

Beyond the basic print function, there are many more print options in Excel. You can print part of a worksheet or several worksheets or workbooks at once.

Set print area

Sometimes you may only want to print part of a worksheet. You can define an area so that any time you print, only that cell range is printed.

1. Select the cell range you want to print.
2. Click the **Page Layout** tab on the Ribbon and click the **Print Area** button in the Page Setup group.
3. Select **Set Print Area** from the list.

   Dashed lines appear around the new print area.

   Trap: When a print area is set, only the print area that is defined prints. You must clear the print area if you want to return to the default page setup.

Tips

- ✓ Once you set a print area, you can add additional print areas. Select the additional cells, click the **Print Area** button in the Page Setup group, and select **Add to Print Area**. The added area also has dashed lines around it.

Clear print area

Clear the print area and return to the default page setup.

1. Click the **Page Layout** tab on the Ribbon and click the **Print Area** button in the Page Setup group.

   A list of print area options appears.
2. Select **Clear Print Area** from the list.

   The print area is cleared.

Print dialog box

You can print a selection, select only certain pages to print, and select the number of copies to print using the Print dialog box.

1. Click the **Office Button** and select **Print**.

   The Print dialog box appears. Here you can select from many different print options. The dialog box contains four main areas:

Exercise

- **Exercise File:** Sales7-6 xlsx
- **Exercise:** Set the print area to print only the cell range A2:B11.
  Open the Print dialog box and look at the printing options.
  Close the dialog box without printing.

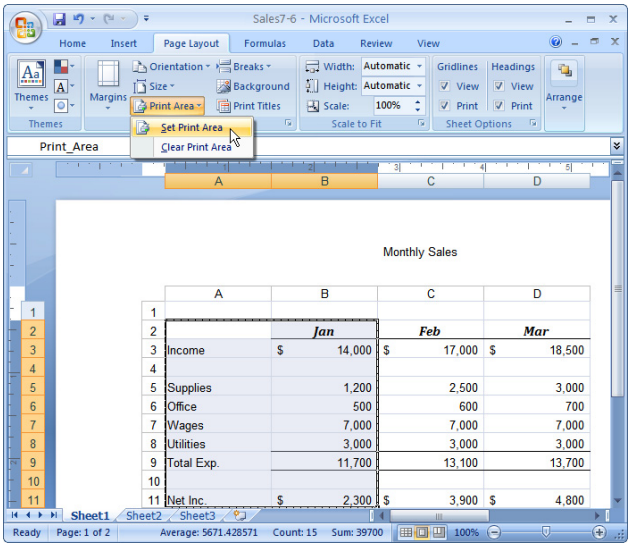


Figure 7-11: Setting a print area.

- **Printer:** Here you can select the printer you want to use—if you are connected to multiple ones. Click the **Name** list arrow and select the printer you want to use. To view printer-specific options, click the **Properties** button.
- **Print Range:** Here you can select to print specific pages. Select the **Pages** option. In the From box, enter the first page you want to print. In the To box, enter the last page. By default, all pages print.
- **Copies:** Here you can select the number of copies you want to print. Enter the number of copies you want to print or click the arrow buttons to select the amount. By default, one copy prints.
- **Print what:** Here you can select what you want to print. Select the **Selection** option to print only the cell(s) currently selected in the worksheet. Select **Entire workbook** to print the whole workbook or **Table** to print the currently active table. You can click **Ignore print areas** if you have set a print area but want Excel to override it and print the whole worksheet. By default, the entire active sheet prints.

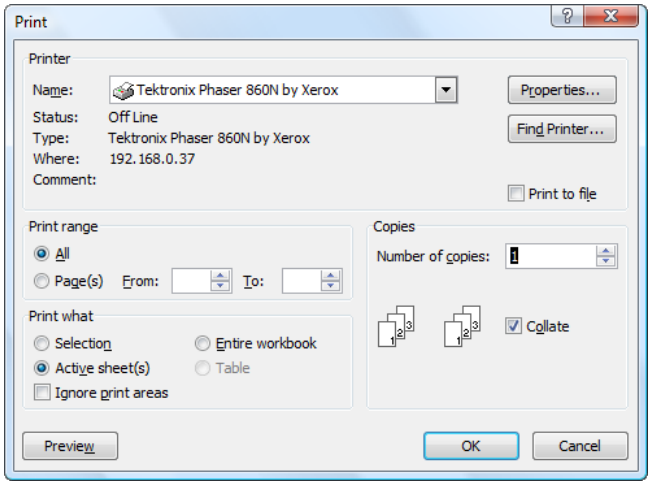


Figure 7-12: The Print dialog box.

Print multiple worksheets

You can print several worksheets at once.

1. Select multiple sheet tabs.

   Tip: To select adjacent tabs, press and hold the **<Shift>** key and select the first and last worksheet tabs you want to select. Or, to select non-adjacent tabs, press and hold the **<Ctrl>** key and click the desired tabs.

2. Click the **Office Button** and select **Print**. Click **OK**.

Print multiple workbooks

You can also print several workbooks at once.

1. Click the **Office Button** and select **Open**.

   The Open dialog box appears.

2. Browse to the workbook files you want to open.

3. Press and hold the **<Ctrl>** key and click each workbook file you want to print.

4. Click the **Tools** button in the dialog box and select **Print** from the list.

   The workbooks print.

8

More Functions and Formulas

Formulas with Multiple Operators 119

Inserting and Editing a Function 120
Insert a function using the Insert Function dialog box 120
Insert a function using the Function Library 121
Edit a function 121

AutoCalculate and Manual Calculation 122
Use AutoCalculate 122
Change AutoCalculate options 122
Manual formula calculation options 122

Defining Names 124
Define a name for a cell range 124
Define names with the New Name dialog box 124

Using and Managing Defined Names 126
Use defined names 126
View defined names 126
Edit defined Subheading 126
Delete defined names 127

Displaying and Tracing Formulas 128
Display formulas 128
Trace formula precedents and dependents 128
Use the Watch Window 129

Understanding Formula Errors 130

Formulas are the heart and soul of a spreadsheet. Without formulas, Excel would be nothing more than a grid for displaying numbers and text. As you will see in this chapter, formulas can do a lot more than just adding, subtracting, multiplying, and dividing. Excel has hundreds of different formulas you can use to create complex statistical, financial, and scientific calculations. The most expensive calculator in the world couldn't come close to matching all of Excel's functions.

In this chapter, you'll learn about more complex formula writing, how to insert and edit functions, how to define names, and how to trace formulas and diagnose errors.

Using Exercise Files

This chapter suggests exercises to practice the topic of each lesson. There are two ways you may follow along with the exercise files:

- Open the exercise file for a lesson, perform the lesson exercise, and close the exercise file.
- Open the exercise file for a lesson, perform the lesson exercise, and keep the file open to perform the remaining lesson exercises for the chapter.

The exercises are written so that you may "build upon them", meaning the exercises in a chapter can be performed in succession from the first lesson to the last.

Formulas with Multiple Operators

Formulas can contain several values, such as 81 and 3.5; cell references, such as B5 and C1:D11; operators, such as * (multiplication) and + (addition); and functions, such as SUM and AVERAGE. When you combine several operations and functions into a single formula, Excel performs the operations in a predetermined order.

When a formula contains several operators with the same precedence, Excel calculates the formula from left to right. You can change the order by enclosing the part of the formula you want Excel to calculate first in parentheses. Table 8-1: Order in Which Excel Performs Operations in Formulas is a good reference for how to structure formulas with multiple operations.

Tips

✓ All formulas must begin with an equal sign (=).

Exercise

- **Exercise File:** None required.
- **Exercise:** Open a new blank workbook. In cell A1, enter =(20+5)/(10-5). In cell A2, enter =20+5/10-5.
  Notice that the parentheses cause the formulas to have different results.
  Close the workbook without saving.

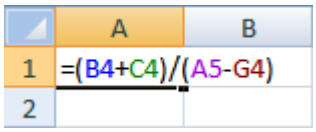


Figure 8-1: Entering a formula with multiple operators.

Table 8-1: Order in Which Excel Performs Operations in Formulas

Operations performed in this order

( )	Parentheses change the order of evaluation. For example: **=(20+5)/(10-5)** would add 20 and 5 (25), subtract 10 by 5 (5) and then divide the results to equal 5. But… **=20+5/10-5** would divide 5 by 10 (0.5), add the result to 20 (20.5) and then subtract 5 to equal 15.5.
:	Reference Operator
%	Percent
^	Exponentiation
*** and /**	Multiplication and division
+ and -	Addition and subtraction
= < > <= >=	Comparison

Inserting and Editing a Function

There are several hundred functions available in Excel. Some are simple, such as the SUM function. Others are much more complex and contain several different arguments. For example, the syntax for the DB function, which is used to depreciate an asset, is DB(cost,salvage,life,period,month).

Fortunately, the Insert Function feature is available to help you select, enter, and edit worksheet functions.

Insert a function using the Insert Function dialog box

1. Select the cell where you want to enter the formula and click the **Insert Function** button on the Formula Bar.

   The Insert Function dialog box appears. Table 8-2: Function Categories describes the function categories available in Excel.

   Other Ways to Open the Insert Function Dialog Box:
   Click the **Formulas** tab on the Ribbon and click the **Insert Function** button in the Function Library group.

2. Click the **Or select a category** list arrow and select a function category.

   All the functions in the selected category appear in the "Select a function" list.

   Other Ways to Find a Function in the Insert Function Dialog Box:
   Type a description of the function in the "Search for a function" text box and click **Go**. The related functions appear in the "Select a function list."

3. Select the function you want to use in the "Select a function" list and click **OK**.

   The Function Arguments dialog box appears. Here you need to enter the arguments, which are the values or cell references needed to calculate the function.

   Tip: Instead of typing argument values into the dialog box, you can click a **Collapse Dialog** button, select a cell range in the worksheet, and then click the **Expand Dialog** button.

4. Enter the arguments in the text boxes and click **OK**.

   The function is inserted into the cell.

Exercise

- **Exercise File:** Sales8-1 xlsx
- **Exercise:** Use the Insert Function dialog box to insert the AVERAGE function in cell B13 and find the average of all the Net Inc. values. Enter the label "Average Net Inc." in cell A13.
  Use the Date & Time button in the Function Library group on the Ribbon to insert the TODAY function in cell A1.

Figure 8-2: The Formula Bar.

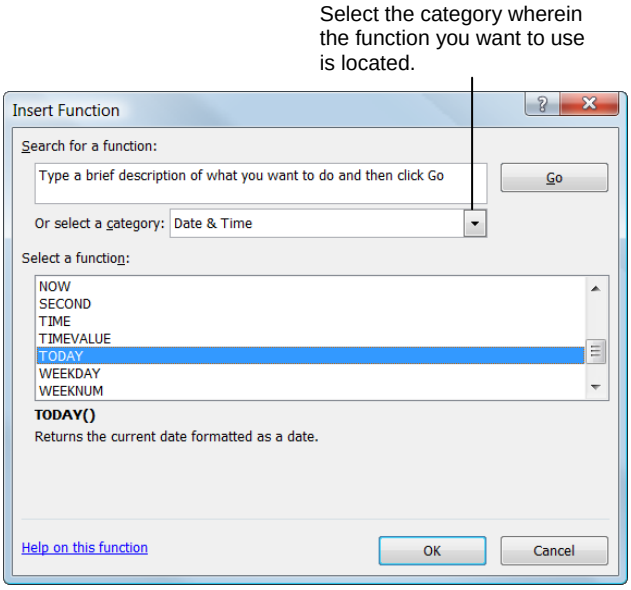


Figure 8-3: Selecting a function category in the Insert Function dialog box.

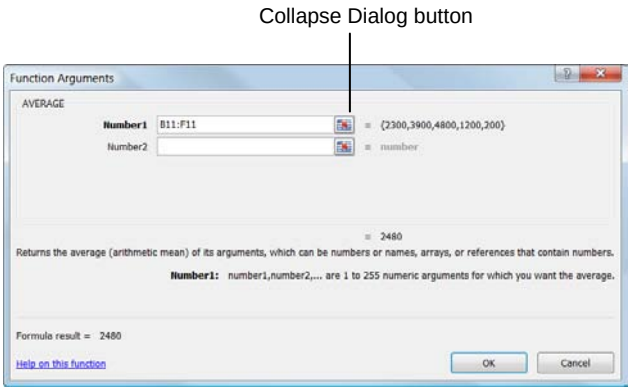

Collapse Dialog button
Function Arguments
AVERAGE
Number1 B11:F11
{2300,3900,4800,1200,200}
Number2
number
= 2480
Returns the average (arithmetic mean) of its arguments, which can be numbers or names, arrays, or references that contain numbers.
Number1: number1,number2,... are 1 to 255 numeric arguments for which you want the average.
Formula result = 2480
Help on this function
OK
Cancel

Figure 8-4: Function Arguments dialog box.

Insert a function using the Function Library

Another way you can access functions by category is in the Function Library group.

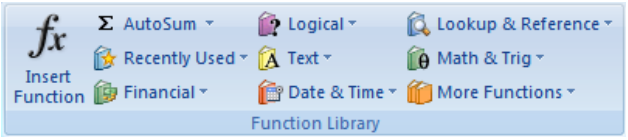


Figure 8-5: The Function Library group on the Formulas tab.

1. Select the cell where you want to enter the formula and click the **Formulas** tab on the Ribbon.

   In the Function Library group, you'll see the same categories of functions that are available in the Insert Function dialog box, plus the AutoSum button that automatically inserts the Sum function.

2. Click a function category button in the Function Library and select the function you want to use.

   The Function Arguments dialog box appears.

3. Enter the arguments in the text boxes and click **OK**.

   The function is inserted into the cell.

   Tip: If you click a function category button in the Function Library and then point to a function, a ScreenTip appears that describes the formula.

Edit a function

1. Select the cell with the function you want to edit.

   Choose from the following options:

   - Click the **Insert Function** button on the formula bar and edit the function arguments in the Function Arguments dialog box.
   - Click in the formula bar and directly edit the function in the formula bar.

Table 8-2: Function Categories

Most Recently Used	Lists the functions you've used most recently.
All	Lists every function available in Excel.
Financial	Lists financial functions to calculate interest, payments, loans, etc.
Date & Time	Lists functions to calculate date and times values.
Math & Trig	Lists math and trigonometry functions, such as SUM, COS, and TAN.
Statistical	Lists statistical functions, to calculate averages, standard deviations, etc.
Lookup & Reference	Lists functions that lookup or reference values.
Database	Lists functions that lookup or calculate values in a list or database.
Text	Lists functions that can be used with text or labels.
Logical	Lists IF…THEN conditional-type functions.
Information	Lists functions that return information about values and the worksheet itself.
Engineering	Lists functions used in engineering calculations.
Cube	Lists functions that extract data from OLAP cubes.

AutoCalculate and Manual Calculation

You have a few options for how Excel calculates worksheets. Besides using formulas, Excel can automatically perform certain calculations—all you have to do is select the cells. You can also tell Excel when you want to manually calculate formulas in a worksheet.

Use AutoCalculate

You don't always need to enter a formula to make a quick calculation. For example, if you have a column containing a few numbers you want to add together, you can simply select the cells and look to the status bar for the answer—Excel has calculated the sum for you there.

1. Select the cells you want to average, count or sum.

   Excel's AutoCalculate feature takes the cells you selected and displays the results to these common calculations in the status bar, as shown in Figure 8-6.

Change AutoCalculate options

You can also change and add calculations in the status bar.

1. Right-click the status bar.

   The Customize Status Bar list appears. Here you can add Numerical Count, Minimum or Maximum to the status bar. You can also remove Average, Count or Sum if you'd like. Table 8-3: AutoCalculate Options in the Status Bar displays more information about these options.

2. Select the calculations that you want to be displayed on the status bar.

   The calculations you selected appear on the status bar.

Manual formula calculation options

By default, Excel recalculates all the formulas in a workbook whenever you change a value that affects another value. However, you can change the calculation options so that formulas will only calculate when directed by you.

1. Click the **Formulas** tab on the Ribbon and click the **Calculation Options** button in the Calculation group.

   Three options appear in the list:

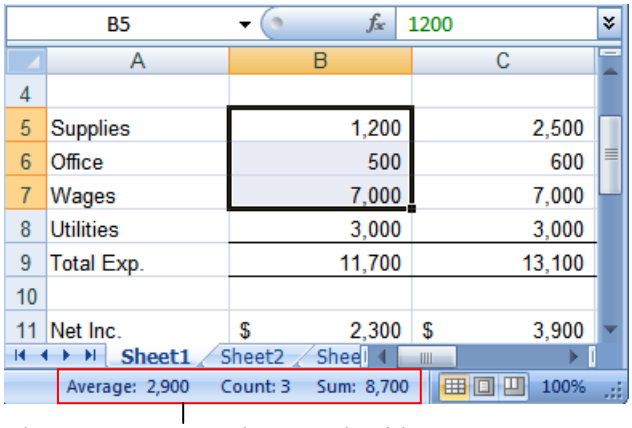
   - **Automatic:** This is selected by default. Values are automatically recalculated whenever a change occurs in the workbook.

Exercise

- **Exercise File:** Sales8-2 xlsx
- **Exercise:** Select the cell range B9:G9 and look at the status bar to see the average monthly expenses.
  Select the Manual calculation option. Enter 12,000 in cell B3 and notice that no other values change. Click the Calculate Now button and watch the worksheet formulas calculate new values.
  Change back to Automatic calculation.

Table 8-3: AutoCalculate Options in the Status Bar

By Default	**Average**	Average of selected cells.
	Count	Number of selected cells that contain data.
	Sum	Sum of selected cells.
Optional	**Numerical Count**	Number of selected cells that contain numbers.
	Minimum	Smallest value in the selection.
	Maximum	Largest value in the selection.



The Average, Count, and Sum results of the selected cell range.

Figure 8-6: The AutoCalculate feature in the status bar.

- **Automatic Except for Data Tables:** The workbook is automatically updated with any changes. Data tables are only updated manually.
- **Manual:** The workbook is only updated when directed by the user.

2. Select a calculation option.

   If you select an option other than Automatic, you will need to tell Excel when you want to recalculate. The Calculate Now button calculates the entire workbook when you click it, while the Calculate Sheet button only calculates the current worksheet.

3. Click the **Calculate Now** or **Calculate Sheet** button in the Calculation group.

   The workbook or worksheet recalculates.

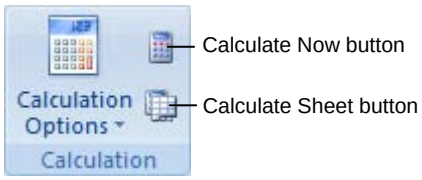


Figure 8-7: The Calculation group on the Formulas tab.

Defining Names

Defining a name makes your formulas much easier to understand and maintain. For example, you could name the cell range B16:H16 “Total Sales.” Then, instead of totaling sales with the formula =SUM(B16:H16), you could use the defined name to create the more legible formula, =SUM(TotalSales).

You can define a name a cell range, formula, constant, or table.

Define a name for a cell range

You can define a name for a cell, cell range, or even multiple non-adjacent cells that you have selected.

1. Select the cells you want to name.

   If you want to select a range of non-adjacent cells, press and hold the <Ctrl> key while selecting cells.

2. Click the **Name Box** on the formula bar.

   The Name Box is at the left end of the formula bar and displays the name of the cell in the upper left corner of the currently selected range.

3. Type a name for the selection.

   You can enter up to 255 characters.

   Trap: You can’t use a cell reference, like B2, as a name, and you can’t use spaces in a name (use an underscore or period instead).

4. Press the **<Enter>** key.

   The defined name is confirmed.

   Other Ways to Define a Name for a Cell Range: You can use existing row and column labels as defined names. Select the cell range to name, including the row and/or column labels. Click the **Formulas** tab on the Ribbon and click the **Create from Selection** button. Select the name options you want to use and click **OK**. The resulting defined name refers to only the cells with values, not the cells with the row and column labels.

Define names with the New Name dialog box

For more options and flexibility when defining names you can use the New Name dialog box. Here you can define names for cell references, constants and formulas.

1. Click the **Formulas** tab on the Ribbon and click the **Define Name** button in the Defined Names group.

   The New Name dialog box appears.

Exercise

- **Exercise File:** Sales8-3 xlsx
- **Exercise:** Create defined names for each of these cell ranges—B5:B8, C5:C8, D5:D8—and name them JanExpenses, FebExpenses, and MarExpenses, respectively.

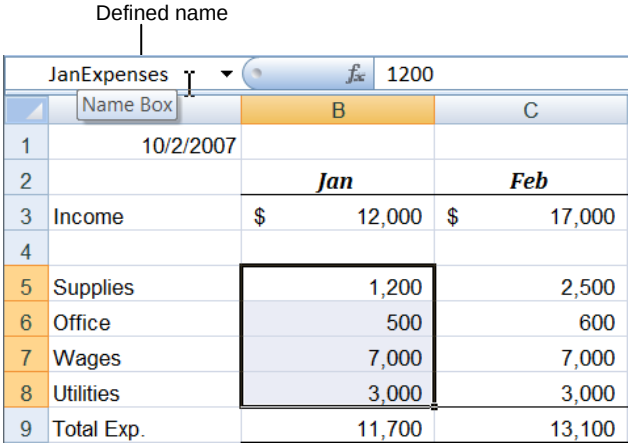


Figure 8-8: A defined name in the Name Box.

Other Ways to Display New Name Dialog Box: Click the **Formulas** tab on the Ribbon. Click the **Name Manager** button in the Defined Names group. Click the **New** button.

2. Enter a name in the Name text box.

   The name should be something that is easy to remember, and identifies what is being named.

3. Click the **Scope** list arrow and select the scope you want to use.

   The scope determines whether the name is recognized by the whole workbook or just individual worksheets within the workbook**.**

   Tip: Names in which the scope is a worksheet can be recognized in other sheets of the workbook. Just qualify the sheet name first, for example: Sheet1!Income_FY08.

4. (Optional) Enter a comment in the Comment box.

   The comment will be visible in the Name Manager dialog box.

5. Complete the "Refers to" box as necessary.

   The "Refers to" box displays the currently selected cell or cell range. You have a few options:

   - **Define a name for the current cell range:** Keep the current cell range selected. Do nothing.
   - **Select a different cell range:** In the "Refers to" box, select a different cell range: Click the **Collapse Dialog** button, select different cells on the worksheet and click the **Expand Dialog** button.
   - **Define a name for a constant:** In the "Refers to" box, enter an equal sign (=) followed by a constant value, such as 7.2.
   - **Define a name for a formula:** In the "Refers to" box, enter an equal sign (=) followed by a formula, such as FV(8,6,C4).

6. Click **OK**.

   The name is defined and the dialog box closes.

Tips

✓ You can use upper- and lowercase letters in defined names, but Excel doesn't distinguish between them.

✓ Besides creating defined names, you can also create "table names." Excel automatically creates a table name like "Table1" when a table is created, but you can use the Name Manager to change the name.

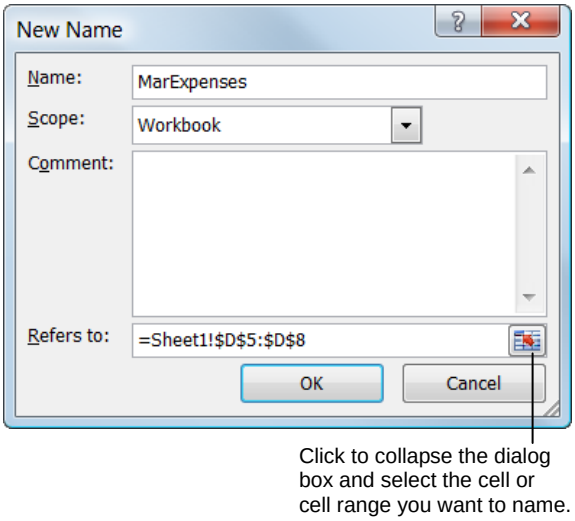


Figure 8-9: The New Name dialog box.

Using and Managing Defined Names

Once you create defined names, you can use them in formulas. You can also use the Name Manager dialog box to view, edit, delete, and create new defined names.

Use defined names

Once cells have been given names, they are easy to reference in other formulas.

1. Click the **Formulas** tab on the Ribbon, click the **Use in Formula** button in the Defined Names group, and select a name from the list.

   The defined name is inserted into the currently selected cell or the formula you are editing.

   Other Ways to Use a Name:
   Type a defined name in a formula.

View defined names

There are a few places you can view all of a workbook's defined names:

- **Name Manager dialog box:** Click the **Formulas** tab on the Ribbon and click the **Name Manager** button in the Defined Names group. Here you can see a list of the defined names and table names. The list includes the name, current value, current reference for the name, scope, and any comments related to the name. You can click and drag the right column border to change the width of a column.
- **Worksheet cells:** Find an area in the worksheet with two blank columns. Select a cell that will become the upper-left corner of the list. Click the **Formulas** tab on the Ribbon, click the **Use in Formula** button and select **Paste Names**. Click the **Paste List** button. The defined names and the related descriptions appear in the columns.
- **Name Box list:** Click the arrow next to the Name Box to view the defined names. If you select a name here, the cell range that is defined by that name is selected in the worksheet.

Edit defined names

You can use the Name Manager dialog box to edit defined names.

1. Click the **Formulas** tab on the Ribbon and click the **Name Manager** button in the Defined Names group.

   The Name Manager dialog box appears.

Exercise

- **Exercise File:** Sales8-4 xlsx
- **Exercise:** Edit the defined names in the Name Manager dialog box so they read Jan, Feb, and Mar instead of JanExpenses, FebExpenses, and MarExpenses.
  Enter the label "Q1 Avg. Mo. Exp." in cell A14.
  In cell B14, enter the formula =AVERAGE(Jan,Feb,Mar) to find the average expenses per month for the first quarter of the year.
  Delete the JanIncome defined name.

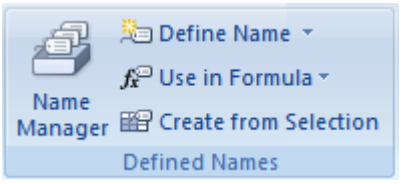
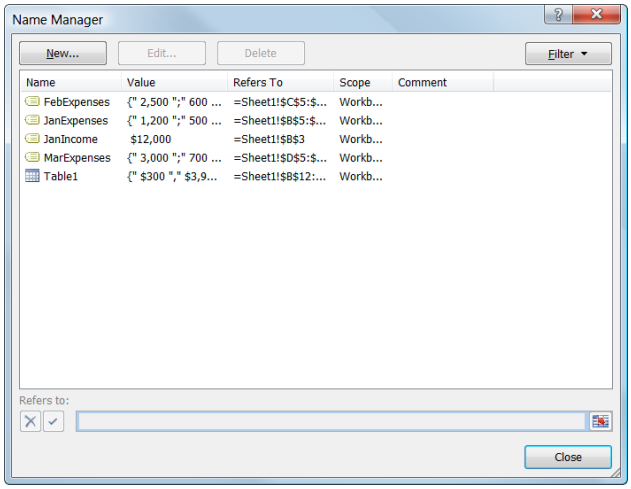


Figure 8-10: The Defined Names group.



Defined names are denoted in the Name Manager dialog box by an icon that looks like a note tag.

Figure 8-11: The Name Manager dialog box.

2. Select a defined name and click the **Edit** button.

   The Edit Name dialog box appears. This dialog box is essentially the same as the New Name dialog box. Here you can change the name of the defined name or change what the name refers to.

3. Make changes to the defined name as desired, then click **OK**.

   You return to the Name Manager dialog box.

4. Click **Close**.

   Other Ways to Edit Defined Names:
   Select the defined name you want to edit in the Name Manager dialog box, then change the information in the "Refers to" box.

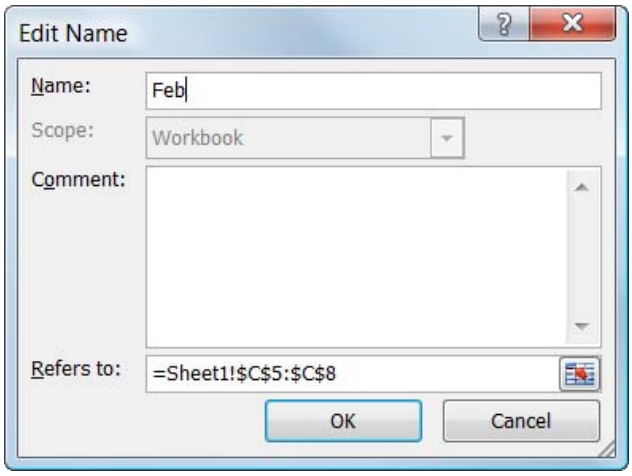


Figure 8-12: The Edit Name dialog box.

Delete defined names

If you want to remove a defined name, you can delete it in the Name Manager dialog box. You can also delete more than one defined name at once.

1. Click the **Formulas** tab on the Ribbon and click the **Name Manager** button in the Defined Names group.

   The Name Manager dialog box appears.

2. Select the defined name(s) you want to delete.

   Press and hold the <Shift> key to select multiple adjacent names or the <Ctrl> key to select multiple non-adjacent names for deletion.

3. Click the **Delete** button.

   A message appears, asking if you're sure you want to delete the defined name or names.

4. Click **OK**.

   The defined name or names are deleted.

Tips

- ✓ In the Name Manager dialog box, you can filter the list of defined names by scope; whether or not they have errors; or by type of name (defined or table). Click the **Filter** button and select the filter you want to use.
- ✓ You can also click the **New** button in the Name Manager dialog box to define a new name.

Displaying and Tracing Formulas

You can better understand the formulas in a workbook by displaying formulas, tracing precedents and dependents, and using the Watch Window.

By default, Excel displays the results of formulas in the worksheet instead of showing the actual formulas. However, you can choose to have Excel display the formulas so you can see how they're put together.

Also, by tracing precedents and dependents, you can display arrows that show you which cells affect a selected cell and which cells that cell affects. And the Watch Window allows you to constantly keep tabs on important formulas and their values.

Display formulas

1. Click the **Formulas** tab on the Ribbon and click the **Show Formulas** button in the Formula Auditing group.

   Formulas are displayed in the worksheet and the columns widen to accommodate the formulas, if necessary.

   Tip: If you display formulas and then select a cell that contains a formula, colored lines appear around cells that are referenced by the formula.

   Now let's hide the formulas again.

2. Click the **Show Formulas** button in the Formula Auditing group again.

   Formulas are no longer displayed and the columns return to their original sizes.

   Tip: If you print a worksheet with formulas displayed, the formulas print instead of values.

Trace formula precedents and dependents

Sometimes you may want to know what other cells are affected by or are affecting a certain cell. You can trace the influence of formulas by displaying arrows that show precedent and dependent cells.

1. Select a cell that contains a formula you want to trace.

2. Click the **Formulas** tab on the Ribbon.

   In the Formula Auditing group, there are a couple different buttons you can choose from:

Exercise

- **Exercise File:** Sales8-5 xlsx
- **Exercise:** Display, then hide the formulas in the worksheet.
  Select cell B14 and trace precedents, then remove the arrows.
  Add cell B14 to the watch window. Then, change cell B5 to $1,000 to watch the value update in the watch window.
  Close the Watch Window.

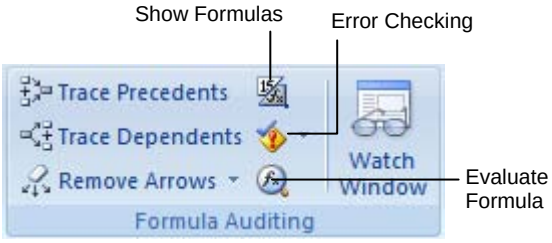
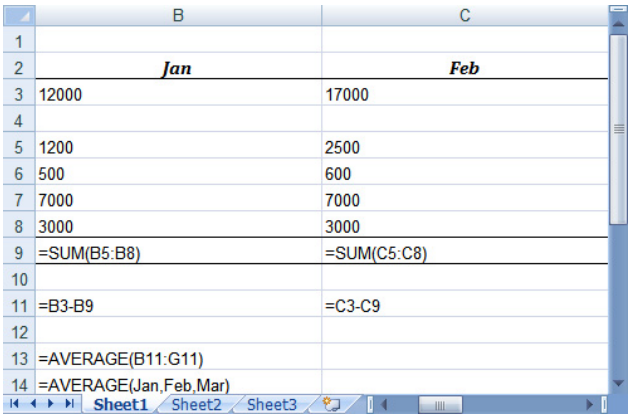


Figure 8-13: The Formula Auditing group on the Formulas tab.



	B	C
1		
2	*Jan*	*Feb*
3	12000	17000
4		
5	1200	2500
6	500	600
7	7000	7000
8	3000	3000
9	=SUM(B5:B8)	=SUM(C5:C8)
10		
11	=B3-B9	=C3-C9
12		
13	=AVERAGE(B11:G11)	
14	=AVERAGE(Jan,Feb,Mar)	

Sheet1 Sheet2 Sheet3

Figure 8-14: A worksheet with formulas displayed.

- **Trace Precedents:** Displays arrows that show what cells affect the currently selected cell.
- **Trace Dependents:** Displays arrows that point to cells that are affected by the currently selected cell.

3. Click the **Trace Precedents** or **Trace Dependents** button in the Formula Auditing group.

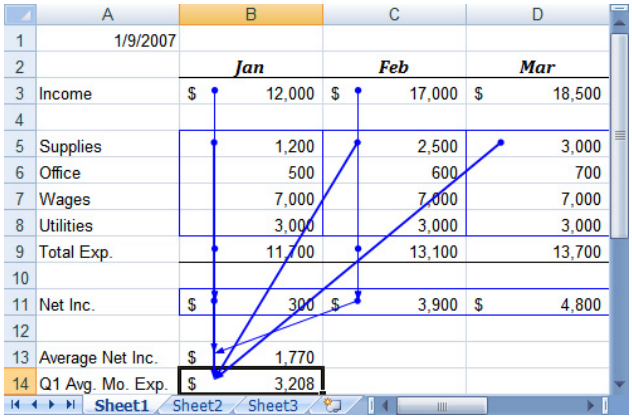
   Arrows appear, illustrating how the cells relate to the formula in the currently selected cell. Dots appear on the arrows to point out which specific cells are involved. If there are precedents or dependents on another worksheet, an icon appears letting you know that.

   Once you're done analyzing your formulas, you can remove the arrows.

4. Click the **Remove Arrows** button in the Formula Auditing group.

   All the tracing arrows disappear from the worksheet.

   Tip: If you want to remove only precedent arrows or only dependent arrows, click the **Remove Arrows** button list arrow and select an option.



	A	B	C	D
1	1/9/2007			
2		*Jan*	*Feb*	*Mar*
3	Income	$ 12,000	$ 17,000	$ 18,500
4				
5	Supplies	1,200	2,500	3,000
6	Office	500	600	700
7	Wages	7,000	7,000	7,000
8	Utilities	3,000	3,000	3,000
9	Total Exp.	11,700	13,100	13,700
10				
11	Net Inc.	$ 300	$ 3,900	$ 4,800
12				
13	Average Net Inc.	$ 1,770		
14	Q1 Avg. Mo. Exp.	$ 3,208		

Sheet1 Sheet2 Sheet3

Figure 8-15: Arrows tracing formula precedents and dependents for B14.

Use the Watch Window

The Watch Window allows you to monitor the values of certain cells as changes are made to worksheets. You can add cells you want to watch from different worksheets and even different workbooks.

1. Click the **Formulas** tab on the Ribbon and click the **Watch Window** button in the Formula Auditing group.

   The Watch Window appears. Here you can add cells you want to track.

2. Click the **Add Watch** button.

   The Add Watch dialog box appears.

3. Select the cell or cell range you want to watch and click **Add**.

   The workbook and worksheet names, defined name, cell reference, current value, and formula for the selected cell(s) appear in the Watch Window.

   Tip: If you no longer want to track a certain cell, select it in the Watch Window and click the **Delete Watch** button.

4. Click the Watch Window's **Close** button.

   The Watch Window closes.

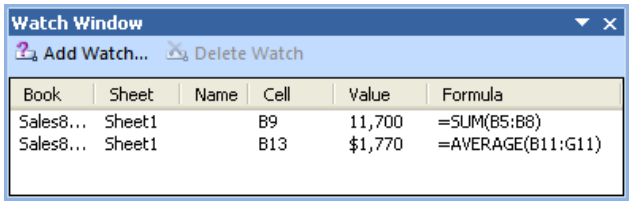


Figure 8-16: The Watch Window.

Understanding Formula Errors

Sometimes Excel comes across a formula that it cannot calculate. When this happens, it displays an error value. Error values occur because of incorrectly written formulas, referencing cells or data that don't exist, or breaking the fundamental laws of mathematics. Excel includes an Error Checking feature to help you deal with errors.

1. Click the **Formulas** tab on the Ribbon and click the **Error Checking** button in the Formula Auditing group.

The cell pointer moves to the first cell that contains an error and the Error Checking dialog box appears. Here you can see the formula arguments that are causing the error and Excel explains the error type. See Table 8-4: Excel Errors for further description of errors in Excel.

The Error Checking dialog box also has several buttons to help you with errors:

- **Help on this error:** Displays a Help topic that explains the type of error you're seeing.
- **Show Calculation Steps:** Displays the Evaluate Formula dialog box, which breaks down the formula arguments for you so that you can isolate the error. Click **Evaluate** to show the current value of the underlined argument or click **Step In** to examine the source of a particular argument.
- **Ignore Error:** Allows you to skip the current error and move to the next error in the worksheet.
- **Edit in Formula Bar:** Places the cursor in the formula bar, where you can directly edit the formula arguments and fix the error.

Tip: You can click the **Previous** or **Next** buttons to move between errors in the worksheet, and you can click the **Options** button to change the error checking rules.

Other Ways to display the Evaluate Formula Dialog Box:
Click the **Evaluate Formula** button in the Formula Auditing group.

2. Click the button you want to use in the Error Checking dialog box.

Now you can follow Excel's advice to fix the error.

Other Ways to Fix an Error:
Select the cell that contains an error and point to the **SmartTip** icon that appears next to the cell. A tip appears, telling you why you are getting this

Exercise

- **Exercise File:** Sales8-6 xlsx
- **Exercise:** Add "/0" onto the end of the formula in cell B13 so that the #DIV/0! error appears.
  Then add "+A8" onto the end of formula in cell B14 so that the #VALUE! error appears.
  Display the Error Checking dialog box, and use the Edit in Formula Bar button to delete "/0" from cell B13 and "+A8" from B14.

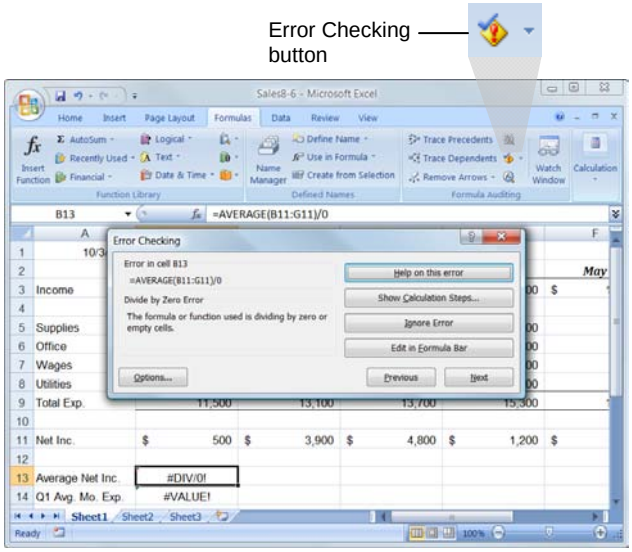


Figure 8-17: The Error Checking dialog box.

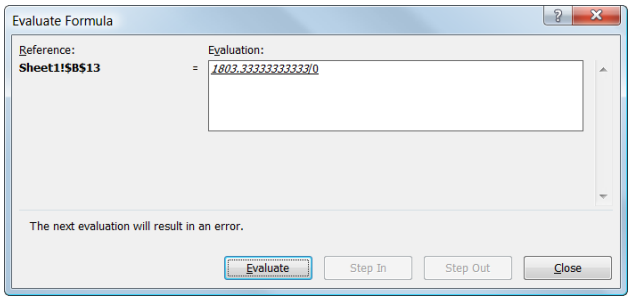


Figure 8-18: The Evaluate Formula dialog box.

type of error. Click the list arrow and select an error checking option.

Tips

- ✓ Another way you can analyze errors is by tracing them with arrows. Select a cell with an error, click the **Error Checking** list arrow in the Formula Auditing group, and select **Trace Error**. Arrows appear, pointing out the cells that are involved in the erroneous formula.
- ✓ If a formula contains its own cell location as a reference, it results in a circular reference, and the formula can't calculate correctly. To locate circular references in your worksheet, click the **Error Checking** list arrow in the Formula Auditing group, point to **Circular References**, and select a cell that contains a circular reference from the list.

Table 8-4: Excel Errors

#####	The numeric value is too wide to display within the cell. You can resize the column by dragging the boundary line between the column headings.
#VALUE!	You entered a mathematical formula that references a text entry instead of a numerical entry.
#DIV/0!	You tried to divide a number by zero. This error often occurs when you create a formula that refers to a blank cell as a divisor.
#NAME?	You entered text in a formula that Excel doesn't recognize. You may have misspelled the name or function, or typed a deleted name. You also may have entered text in a formula without enclosing the text in double quotation marks.
#N/A	This error occurs when a value is not available to a function or a formula. If certain cells on your worksheet contain data that is not yet available, enter #N/A in those cells. Formulas that refer to those cells will then return #N/A instead of attempting to calculate a value.
#REF!	The #REF! error value occurs when a cell reference is not valid. You probably deleted a cell range that is referenced in a formula.
#NUM!	The #NUM! error value occurs when you use an invalid argument in a worksheet function.
#NULL!	You specified an intersection of two ranges in a formula that do not intersect.

9

Working with Data Ranges

Sorting by One Column 133

Sorting by Colors or Icons 135

Sorting by Multiple Columns 137

Sorting by a Custom List 138
Create a custom list 138
Sort by a custom list 139

Filtering Data 140
Filter text, numbers and dates 140
Remove filtering 140

Creating a Custom AutoFilter 141

Using an Advanced Filter 142

If you organize data into a range of rows and columns, you can then easily sort the data into a desired order, or filter the data to display specific information, such as records from a specific zip code.

In this chapter, you will learn how to sort and filter data in data ranges in several different ways.

Using Exercise Files

This chapter suggests exercises to practice the topic of each lesson. There are two ways you may follow along with the exercise files:

- Open the exercise file for a lesson, perform the lesson exercise, and close the exercise file.
- Open the exercise file for a lesson, perform the lesson exercise, and keep the file open to perform the remaining lesson exercises for the chapter.

The exercises are written so that you may "build upon them", meaning the exercises in a chapter can be performed in succession from the first lesson to the last.

Sorting by One Column

In Excel you can take ranges of data and sort them into different orders. For example, you can sort text alphabetically, numbers by size, dates and times chronologically, cells or fonts by color or icon, or you can create a custom sort. Usually you sort by column (or field), but you can also sort by row (or record).

Before you sort your data, make sure it's organized into two components:

- **Fields (columns):** Records are broken up into fields which store specific pieces of information, such as first and last name.
- **Records (rows):** Each record contains information about a unique thing or person, just like a listing in a phone book.

Once you have your data organized in columns and rows, you can sort by values in a certain column.

> **Trap:** If your data has column headings, don't select them when sorting, or they'll be sorted along with your data—unless you first click the **Sort & Filter** button in the Editing group on the Home tab, select **Custom Sort**, and check the **My data has headers** box.

1. Select the range of data or select a cell in the column you want to sort by.

   > **Trap:** If you select a column of data with more data next to it, the Sort Warning dialog box appears, asking if you want to expand your selection. Normally you will want to do this; otherwise, the column of data you've selected will be sorted independently of the surrounding data.

2. Click the **Home** tab on the Ribbon and click the **Sort & Filter** button in the Editing group.

   A list of sorting options appears, which change according to the type of data you are sorting:

   - **Text options:** Sort A to Z or Sort Z to A.
   - **Number options:** Sort Smallest to Largest or Sort Largest to Smallest.
   - **Date options:** Sort Oldest to Newest or Sort Newest to Oldest.

Exercise

- **Exercise File:** SalesReps9-1 xlsx
- **Exercise:** Sort the data in the Last column from A to Z. (Don't include the column header—Last—along with the data.)

Before sorting…

	A	B	C	D	E
1	**Last**	**First**	**Region**	**Position**	**Sales**
2	Winters	Denise	North	Associate	22,000
3	Brown	Clem	South	Manager	20,000
4	Dahl	Ron	North	Senior Manager	18,000
5	Sweet	Tamara	South	Associate	24,000
6					

After sorting from A to Z by the Last column…

	A	B	C	D	E
1	**Last**	**First**	**Region**	**Position**	**Sales**
2	Brown	Clem	South	Manager	20,000
3	Dahl	Ron	North	Senior Manager	18,000
4	Sweet	Tamara	South	Associate	24,000
5	Winters	Denise	North	Associate	22,000
6					

Figure 9-1: Before and after sorting data.

Figure 9-2: The Sort & Filter button and menu.

3. Select a sort option.

The column is sorted based on the values in the left-most column in the selected range. All the fields within each record move together. For example, if you sort a list of first and last names by last name, the first names still correspond to the last names after sorting.

Other Ways to Sort:
Select the entire range or select a cell in the column you want to sort by. Click the **Data** tab on the Ribbon and click one of the sort buttons in the Sort & Filter group. Or, right-click a cell in a column that contains data, point to **Sort**, and select a sort option from the list.

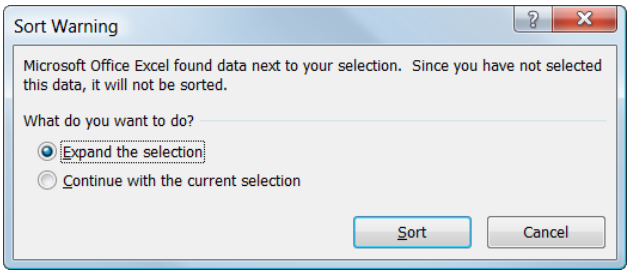

Sort Warning
Microsoft Office Excel found data next to your selection. Since you have not selected this data, it will not be sorted.
What do you want to do?
Expand the selection
Continue with the current selection
Sort
Cancel

Figure 9-3: Always expand the selection if you are sorting data in a list. If you don't, the data will be mismatched with other records or fields.

Tips

- ✓ To sort by rows instead of columns, click the **Sort & Filter** button in the Editing group on the Home tab, select **Custom Sort**, click **Options** in the Sort dialog box and select **Sort left to right**.

Sorting by Colors or Icons

If you want to sort by cell colors, font colors, or by icons, you need to use a custom sort.

1. Select the range of data or a cell within the range.

   The data should contain cell or font color formatting or icons created with conditional formatting.

2. Click the **Home** tab on the Ribbon and click the **Sort & Filter** button in the Editing group.

3. Select **Custom Sort**.

   The Sort dialog box appears. First you need to select which column to sort by.

   Tip: If the range you are sorting includes headers, select the **My data has headers** option so that the headers aren't sorted with the rest of the data.

4. Click the **Sort by** list arrow and select the column you want to sort by.

   Next specify the type of sort. You can choose from Values (which allows you to sort on text, numbers or dates like you already learned about), Cell Color, Font Color, and Cell Icon.

5. Click the **Sort On** list arrow and select the type of sort you want to use.

   Based on the type you select, the Order area will update to display different options. If you are sorting by colors or icons, you'll need to select the order that you want the colors or icons to be sorted.

   Tip: You need to define the sort order for cell colors, font colors, or icons. Excel does not have a default order like it does for values.

6. Click the first list arrow in the Order column and select a cell or font color, or icon.

   Now you need to tell Excel where you want to put the color or icon you selected. You can select On Top or On Bottom to move it to the top of bottom of the column sort; if you are sorting by rows, select from On Left or On Right.

7. Click the second list arrow in the Order column and select the option you want to use.

   Now the data will be sorted with the color or icon you selected placed on top or bottom as you specified. You can specify additional colors or icons by adding additional levels to the sort.

Exercise

- **Exercise File:** SalesReps9-2 xlsx
- **Exercise:** Sort the data by the Sales column so that the red cell icon is on top.
  Add a second sort level to sort by the Sales column, Cell Icon, and this time with the yellow icon on top. Now the sales reps should be sorted from red icons on top, green icons on the bottom.
  Finally, clear conditional formatting from the sheet: click the Conditional Formatting button in the Styles group on the Home tab. Point to Clear Rules and select Clear Rules from Entire Sheet.

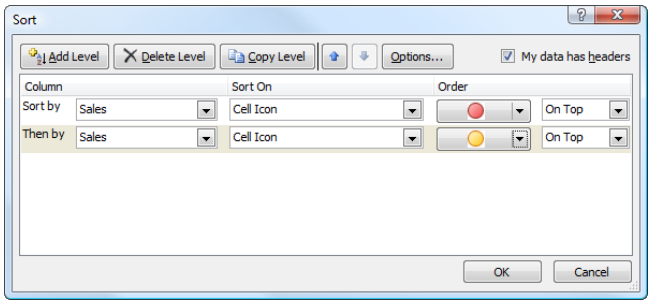


Figure 9-4: Sorting by cell icon in the Sort dialog box.

8. (Optional) Click **Add Level** button in the Sort dialog box.

   A sort level is added.

   Tip: Click the **Delete Level** button to delete the selected sort level you no longer want to use.

9. (Optional) Repeat the steps to define the new sort level. Click **OK** when you're done.

   For example, if you sort by a different color in the second sort level and order it On Top, it will move up just below the color selected to be On Top in the first level of the sort.

Sorting by Multiple Columns

If you want to sort by more than one column, you need to use a custom sort. For example, you can sort first by last name column, then by first name. That way, all the Andersons will be listed before the Bakers, and Andy Anderson will come before Bill Anderson.

1. Select a range of cells with at least two columns of data or select a cell within the range.

2. Click the **Home** tab on the Ribbon and click the **Sort & Filter** button in the Editing group.

3. Select **Custom Sort**.

The Sort dialog box appears.

4. Click the **Sort by** list arrow and select the first column you want to sort by.

5. Click the **Sort On** list arrow and select the type of sort you want to use.

Most of the time you'll sort by values, which includes text, numbers, and dates.

6. Click the **Order** list arrow(s) and select the option(s) you want to use.

To sort by multiple columns, you need to use more sort levels.

7. (Optional) Click **Add Level**.

Excel will sort the data by each level in order.

8. (Optional) Repeat the sorting steps for the next level, selecting the next column you want to sort by, and add more levels.

Excel will sort the data by each level in order.

Tip: Click the **Delete Level** button to delete a sort level you no longer want to use.

9. Click **OK**.

The data range is sorted accordingly.

Exercise

- **Exercise File:** SalesReps9-3 xlsx
- **Exercise:** Sort by multiple columns to see who has the highest sales by region: Sort first by the Region column and sort on Values from A to Z, then sort by the Sales column and sort on Values from Largest to Smallest.

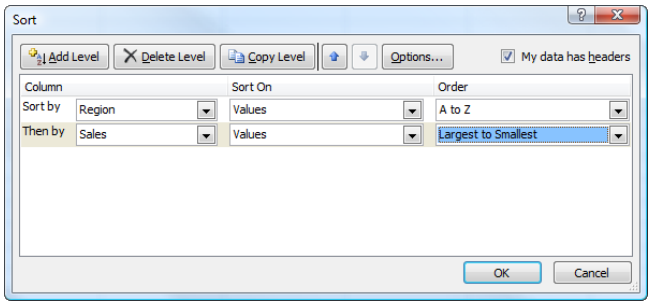


Figure 9-5: Sorting by multiple columns in the Sort dialog box.

	A	B	C	D	E
1	**Last**	**First**	**Region**	**Position**	**Sales**
2	Winters	Denise	North	Associate	22,000
3	Dahl	Ron	North	Senior Manager	18,000
4	Sweet	Tamara	South	Associate	24,000
5	Brown	Clem	South	Manager	20,000
6					
7					
8					
9					
10					
11					

Figure 9-6: The results of the custom sort.

Sorting by a Custom List

A custom list allows you to sort by criteria that you define or by one of Excel's predefined custom lists (which include, for example, Sun, Mon, Tue… or Jan, Feb, Mar…).

Create a custom list

First let's look at how to create your own custom list.

1. Enter the values you want to sort by, in the correct order from top to bottom, in a column of cells.

   For example, you could enter Small, Medium, and Large in successive cells.

2. Select the values you just entered.

   Now you need to create the list.

3. Click the **Office Button** and click the **Excel Options** button.

   The Excel Options dialog box appears.

4. Click the **Popular** category and click the **Edit Custom Lists** button.

   The Custom Lists dialog box appears. Here you can see the custom lists that are already stored in Excel.

5. Make sure the cells you want to use as a list are selected in the Import list from cells. Click the **Import** button.

   Your new custom list appears in the dialog box.

6. Click **OK**.

   The Custom Lists dialog box closes.

7. Click **OK**.

   The Excel Options dialog box closes and the custom list is created.

Tips

✓ You can only create a custom list based on a value, not on cell color, font color, or an icon.

Exercise

- **Exercise File:** SalesReps9-4 xlsx
- **Exercise:** This exercise sorts the sales reps by position from most senior to least senior.
  In cells A10:A12, enter Senior Manager, Manager, and Associate. Create a custom list using those values.
  Next, sort the data by the Position field using the custom list you just created (if Sort levels appear in the dialog box from previous sorts, you can just modify the first one for this new sort).
  Then delete the values from cells A10:A12.

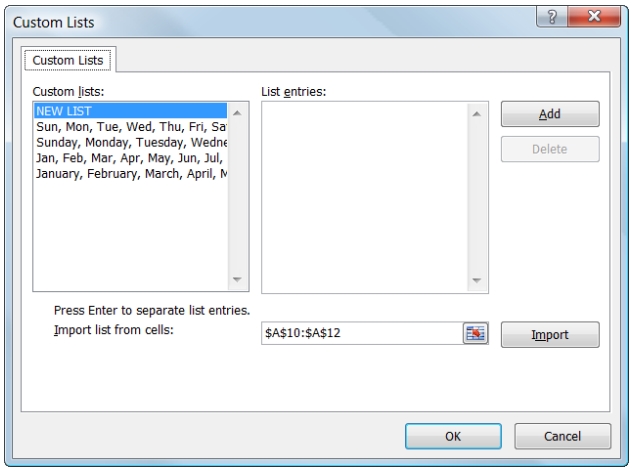


Figure 9-7: Adding a custom list in the Custom Lists dialog box.

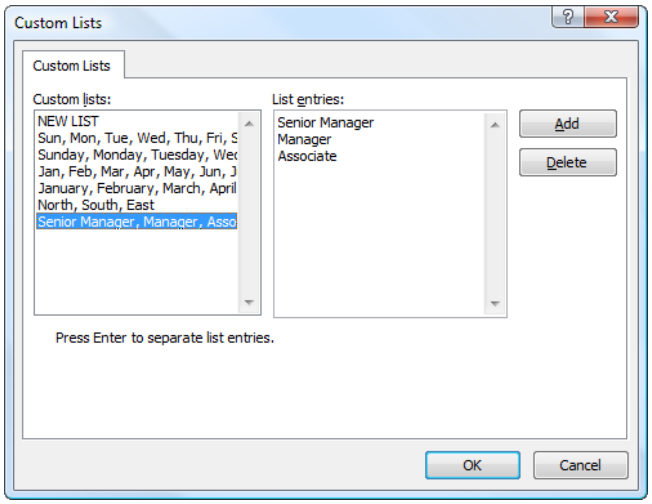


Figure 9-8: The Custom Lists dialog box after the custom list is added.

Sort by a custom list

Once you've created a list, or if you just want to use one of Excel's predefined custom lists, you're ready to sort.

1. Select the range of data you want to sort or select a cell within the range.
2. Click the **Home** tab on the Ribbon, click the **Sort & Filter** button in the Editing group, and select **Custom Sort**.

   The Sort dialog box appears.
3. Click the **Sort by** list arrow and select a column to sort by (the column with data that matches the custom list).
4. Click the **Order** list arrow and select **Custom List**.

   The Custom Lists dialog box appears.
5. Select the custom list you want to use and click **OK**.
6. Click **OK**.

   The data is sorted according to the custom list.

Tips

- ✓ To sort by rows instead of columns, click **Options** in the Sort dialog box and select **Sort left to right**.

Filtering Data

When you filter data, Excel displays only the records that meet the criteria you specify—other records are hidden. You can also filter by multiple columns; each time you filter by an additional column, the data is further reduced.

Filter text, numbers and dates

You can filter by values such as text, numbers, or dates.

1. Select the range of data you want to filter or select a cell within the range.

2. Click the **Home** tab on the Ribbon, click the **Sort & Filter** button in the Editing group, and click **Filter**.

   Filter buttons that look like arrows appear in the first cell of each field header.

   Other Ways to Filter:
   Click the **Data** tab on the Ribbon and click the **Filter** button in the Sort & Filter group.

3. Click the filter button for the column you want to filter.

   A list of filter options appears at the bottom of the list. There is an option for every entry in the field.

4. Checkmark the check boxes of values that you want to display. Remove the checkmarks from check boxes of values that you want to hide.

   The data is filtered so that records that do not meet the criteria are hidden. You can keep filtering by additional columns.

5. (Optional) Click another column's filter button and apply more filter criteria.

6. Click **OK**.

   The data is further reduced.

Remove filtering

You can remove a filter to once again display all the data.

1. Click the **Home** tab on the Ribbon, click the **Sort & Filter** button in the Editing group, and select **Filter**.

   The filter buttons disappear and filtering is removed.

   Other Ways to Remove Filtering:
   Click the **Home** tab on the Ribbon, click the **Sort & Filter** button in the Editing group, and select **Clear**.

Exercise

- **Exercise File:** SalesReps9-5 xlsx
- **Exercise:** Filter the data by region so that only North sales reps appear. Then filter those records additionally so only Associates appear (only Denise Winters and Ron Dahl should remain). Remove the filter so all the data once again appears and the filter buttons disappear.

Filter buttons appear as arrows in the field headers.

	A	B	C	D	E
1	Last	First	Region	Position	Sales
2	Dahl	Ron	North	Senior Manager	18,000
4	Winters	Denise	North	Associate	22,000
6					

Figure 9-9: Data filtered to display only North region sales reps.

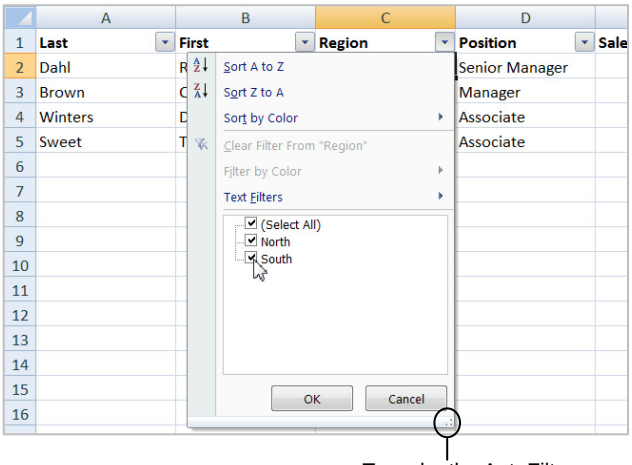


Figure 9-10: Setting criteria for a field. Items that are checked are shown. Items that are not checked are filtered out.

Creating a Custom AutoFilter

Excel offers some predefined filter criteria that you can access using a Custom AutoFilter. This lesson explains how to filter data using Custom AutoFilter.

1. Select a range of cells to filter plus the column header row (or a blank row, if there isn't a header).

2. Click the **Home** tab on the Ribbon, click the **Sort & Filter** button in the Editing group, and click **Filter**.

   Filter buttons appear in the first cell of each column in the range.

3. Click the filter button in the column you want to filter.

   A list of options appears. Depending on whether the selected cells contain text, numbers, or dates, the options will differ.

4. Point to the option that appears in the list: **Text Filters**, **Number Filters**, or **Date Filters**.

   A list of comparison operators, such as Equals, appears, as well as the Custom Filter option.

5. Select **Custom Filter**.

   The Custom AutoFilter dialog box appears.

   Tip: If you're working with numbers or dates and you select a comparison operator such as Above Average (instead of selecting Custom Filter), the Custom AutoFilter dialog box won't appear—the data will simply be filtered.

6. Click the first list arrow and select a comparison operator.

7. Click the second list arrow in the first row and select a value from the list or enter your own value in the text box.

8. (Optional) Select **And** or **Or** and select a second criteria to filter the column by.

   Tip: You can use wildcards when entering values in the Custom AutoFilter dialog box. Use a ? to represent any single character or a * to represent a series of characters.

9. Click **OK**.

   The Custom AutoFilter dialog box closes and the data is filtered.

Exercise

- **Exercise File:** SalesReps9-6 xlsx
- **Exercise:** Use a custom filter to display only the sales reps that are not Associates. Hint: For the Position column, select "Does not equal" as the operator and "Associate" as the value.
  Clear the filter.

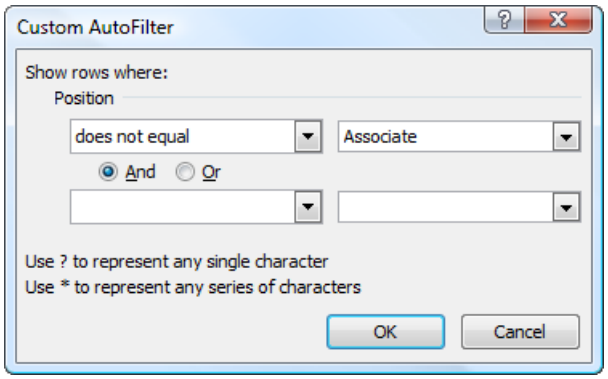


Figure 9-11: The Custom AutoFilter dialog box.

Using an Advanced Filter

Advanced filtering is the most powerful and flexible way to filter your Excel data. It's also the most difficult method, and requires more work to set up and use. With an Advanced Filter, you can:

- Filter using criteria located outside of the data range.
- Use wildcards in the filter criteria.
- Extract and copy filtered results to another range on the worksheet.

To create an Advanced Filter you must start by defining a criteria range. A criteria range is a cell range located outside of your data range that contains the filter criteria.

1. Copy the desired column labels from the data range and paste them in the first row of the criteria range.

For example, if you wanted to filter for sales reps with sales greater than $20,000 and who are also managers, you would copy the Sales and Position column labels to the criteria range.

Tip: The criteria range can be any area of open cells on your worksheet and you only need to copy the labels for the columns that contain criteria you'll be filtering on.

3. In the rows below the criteria labels, type the criteria you want to filter for.

In the above example, you would type >20000 under the Sales label and Manager under the Position label.

Tip: You can enter values or text you want to filter for, and you can incorporate operators such as < or > to specify the records you want to filter for. You can also use wildcards—for example, enter *r to filter out text that doesn't end with the letter "r".

4. Click the **Data** tab on the Ribbon and click the **Advanced** button in the Sort & Filter group.

The Advanced Filter dialog box appears. Here you need to specify the range of data you want to filter, as well as the criteria you want to filter by.

5. Make sure the **Filter the list, in-place** option is selected in the Action area.

That way, the filtered results will be displayed right in the original data range.

Tip: To copy filtered results to another location on the worksheet, first prepare an extract range with labels for the fields you want to display. The

Exercise

- **Exercise File:** SalesReps9-7 xlsx
- **Exercise:** Use the Advanced Filter to filter for Sales >18,000, and a Position that ends with r (Hint: use *r). Clear the filter.
  Do the same Advanced Filter again, but this time extract the results to a different range. Extract only the Last and First columns to a different range (you should end up with Clem Brown being displayed in the extract range).

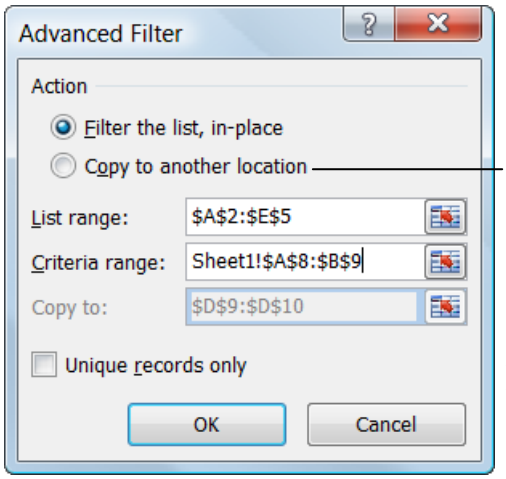


Figure 9-12: The Advanced Filter dialog box.

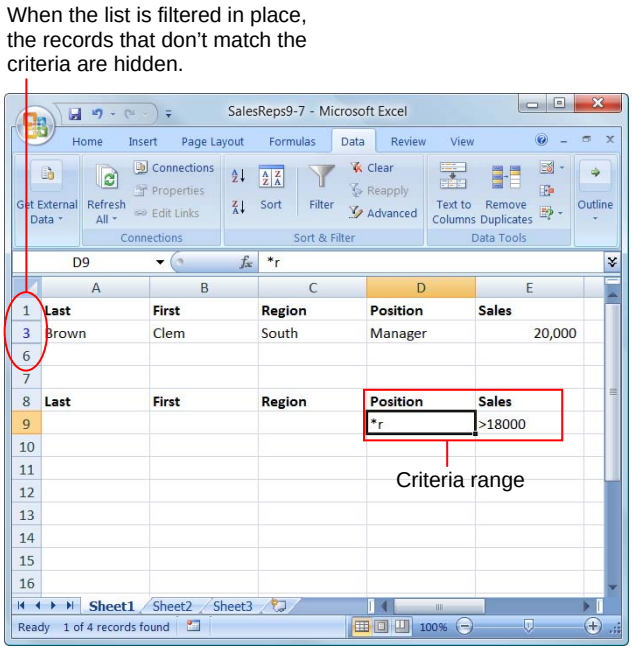


Figure 9-13: Data filtered in place using the Advanced Filter.

extracted fields needn't be the same fields that are used in your criteria range. For example, you can set the filter to only show records from USA, and then extract only the names of records that match those criteria. **Select Copy to another location** in the Action area of the Advanced Filter dialog box. In the "Copy to" box, click the **Collapse Dialog** button, select the range for the extracted results—including labels and blank rows to hold the results—and press <**Enter**>.

6. Click the **List range collapse dialog** button and select the data range you want to filter. Press the **<Enter>** key.

7. Click the **Criteria range collapse dialog** button and select the criteria range, including the column labels. Press the **<Enter>** key.

8. Click **OK**.

   The data is filtered based on the criteria in the criteria range, and the results are displayed in the data range.

   Tip: To remove the advanced filtering, click the **Clear** button in the Sort & Filter group on the Data tab.

   Table 9-1: Comparison Operators and Wildcards provides a description of operators and wildcards you can use for entering filter criteria.

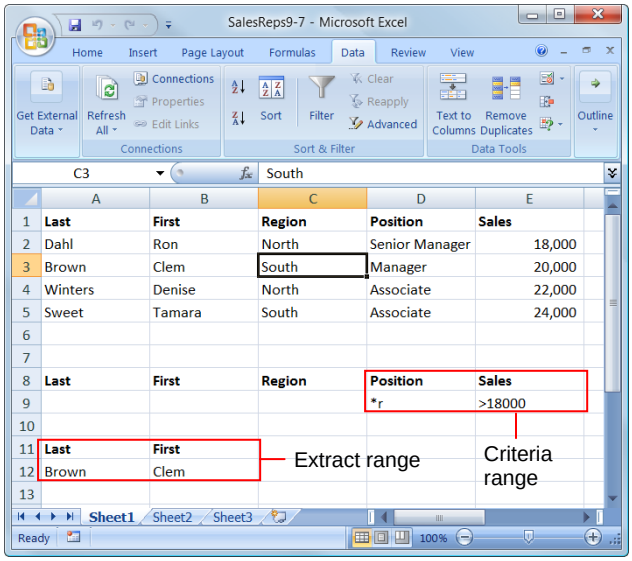


Figure 9-14: Filter results copied to another location (extracted) using the Advanced Filter.

Table 9-1: Comparison Operators and Wildcards

=	Equal to
< >	Not equal to
>	Greater than
<	Less than
> =	Greater than or equal to
< =	Less than or equal to
*	Wildcard--any number of characters in the same position as the asterisk **Example:** "*east" finds "Northeast" and "Southeast"
?	Any single character in the same position as the question mark **Example:** sm?th finds "smith" and "smyth"

10

Working with Tables

Creating a Table 145
Create a table from a cell range 145
Create a blank table 146

Working with Table Size 147
Resize a table 147
Add table rows and columns 147
Delete table rows and columns 148

Working with the Total Row 149
Add a Total row 149
Calculate Total row values 150

Working with Table Data 151
Filter and sort in a table 151
Use calculated columns 151
Structured references 152
Remove duplicate rows of data 152

Summarizing a Table with a PivotTable 153

Using the Data Form 154
Add the Data Form command 154
Use the Data Form 154

Using Table Styles 155
Apply a style while creating a table 155
Apply a different style to an existing table 155
Remove a table style 155

Using Table Style Options 156

Creating and Deleting Custom Table Styles . 157
Create a custom table style 157
Modify a custom table style 158
Delete a custom table style 158

Convert or Delete a Table 159
Convert a table to a cell range 159
Delete a table 159

Tables—called lists in previous versions of Excel—make it easier to work with ranges of Excel data. By turning an Excel range into a table, you can work with the table data independently from the rest of the worksheet. You can quickly sort and filter the table columns, add total rows, and apply table formatting to an Excel table.

Some examples of things you might track in a table include telephone numbers, clients, and employee rosters. Once you create a table in Excel, you can easily find, organize, and analyze its information with Excel's rich set of table-management features.

Using Exercise Files

This chapter suggests exercises to practice the topic of each lesson. There are two ways you may follow along with the exercise files:

- Open the exercise file for a lesson, perform the lesson exercise, and close the exercise file.
- Open the exercise file for a lesson, perform the lesson exercise, and keep the file open to perform the remaining lesson exercises for the chapter.

The exercises are written so that you may "build upon them", meaning the exercises in a chapter can be performed in succession from the first lesson to the last.

Creating a Table

By turning an Excel range into a table, you can work with the table data independently from the rest of the worksheet, and filter button arrows appear automatically on the column headers, allowing you to filter and sort columns even faster. You can also add total rows and quickly apply table formatting.

Tables, like normal data ranges of data, consist of two parts:

- **Records (rows):** Each record contains information about a unique thing or person, just like a listing in a phone book.
- **Fields (columns):** Records are broken up into fields which store specific pieces of information, such as first and last name.

Tips

✓ Before you turn a range of data into a table, remove blank rows and columns, and make sure that you don't have different types of data within one column.

If desired, make sure you have entered column headers. For example, if you want to make a table that lists your company's sales reps, you could enter headers such as Last Name, First Name, Territory, etc. Unique records, such as the names and territories of each of your sales reps, should be entered as rows.

Create a table from a cell range

If you already have an organized range of data, you can turn it into a table.

1. Select a cell range that you want to make into a table.

Normally you will want the cell range to include a header row, with labels identifying each of the columns.

Other Ways to Create a Table:
You can simultaneously create and format a table. Select the cells you want to include in the table and click **Format as Table** in the Styles group on the Home tab. Select a table style. Click **OK**.

Exercise

- **Exercise File:** SalesReps10-1 xlsx
- **Exercise:** Turn the data range, including the column labels, into a table.

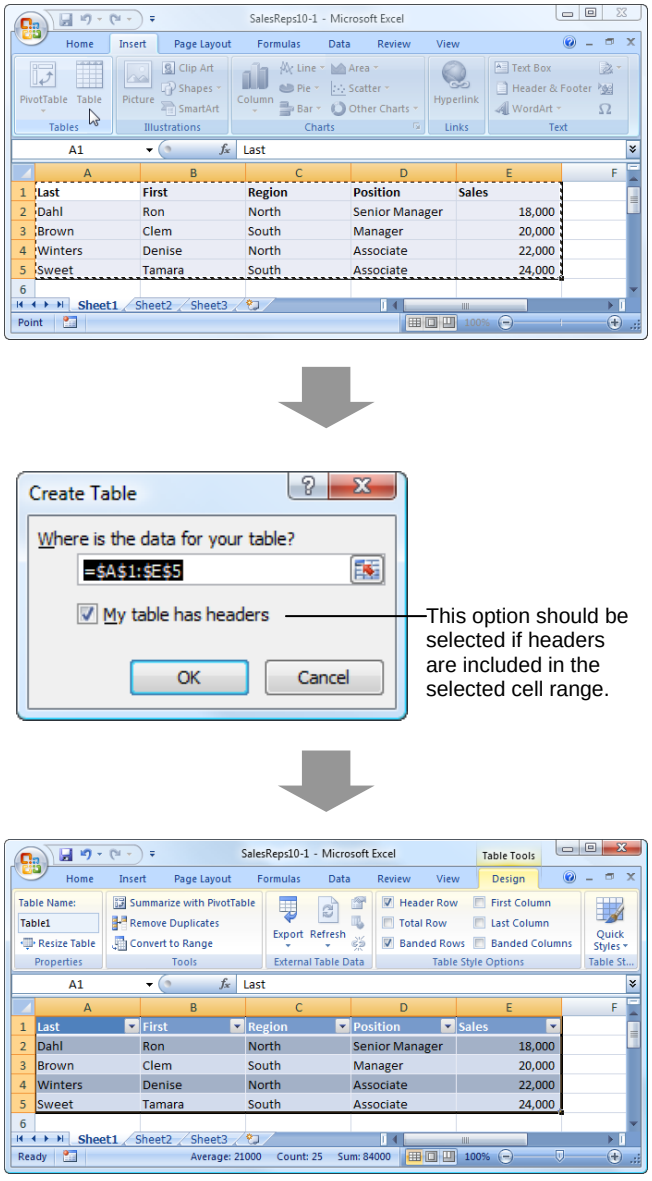

SalesReps10-1 - Microsoft Excel
Create Table
Where is the data for your table?
=$A$1:$E$5
My table has headers
OK
Cancel
This option should be selected if headers are included in the selected cell range.
Table Tools

Figure 10-1: Creating a table from a cell range.

2. Click the **Insert** tab on the Ribbon and click the **Table** button in the Tables group.

   The Create a Table dialog box appears. Here you can edit the range that will become a table, and you can specify whether or not your table has a header row (if it doesn't, Excel adds a header row above the table data).

3. Set the options in the Create a Table dialog box and click **OK**.

   The table is created. Filters are added to each column, and the table is automatically formatted. Under Table Tools on the Ribbon, the Design contextual tab appears.

Create a blank table

If you haven't already entered the data you want to include in a table, you can create the table first.

1. Select a range of cells that is approximately the size you want your table to be.

   You can always change the size later.

2. Click the **Insert** tab on the Ribbon and click the **Table** button in the Tables group.

   The Create Table dialog box appears.

3. Click **OK**.

   The table appears, including placeholder column headers that you can edit, and a resize handle that appears in the lower-right corner of the table.

   Table 10-1: Tips for Organizing Tables provides ideas for setting up your table data.

Table 10-1: Tips for Organizing Tables

Avoid putting blank rows and columns in the table.	So that Microsoft Excel can more easily detect and select the table.
Create column labels in the first row of the table.	Excel uses the labels to create reports and to find and organize data.
Design the table so that all rows have similar items in the same column.	This makes the table more meaningful and organized.
Try to break up information as much as possible.	This gives you more power to sort, filter and manipulate the table.
Each column should contain the same type of information.	This will make the table easier to read and understand.
Don't use duplicate field names.	Duplicate field names can cause problems when entering and sorting information.

Working with Table Size

You can easily expand or reduce a table by using the Resize Table command, the table sizing handle, or by adding or deleting rows and columns.

Resize a table

1. Select a cell in the table.
2. Under Table Tools on the Ribbon, click the **Design** tab.
3. Click the **Resize Table** button in the Properties group.

   The Resize Table dialog box appears.
4. Select the range you want to include in the table.
5. Click **OK**.

   The table is resized. If cells are added to the table, they are empty so you can enter data in the cells.

   Other Ways to Resize a Table:
   Click and drag the sizing handle in the lower-right corner of the table to include more or fewer cells. Or, enter data in a cell below or to the right of the table.

Add table rows and columns

1. Select a cell in the table row or the table column next to which you want to add the row or column.

   You will be able to add a new table row above the row you selected, or add a new column to the left of the column you selected (unless you selected the last column, in which case you can also add a column to the right).

   Tip: Select only the columns or rows within the table for more inserting options. For example, clicking a column header does not allow you to choose if you want to insert new columns to the right or left.
2. Click the **Home** tab on the Ribbon and click the **Insert** button list arrow.

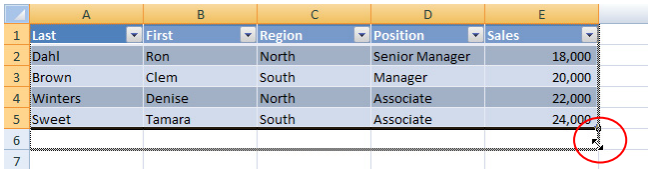
   The options available here change, depending on the cell(s) that are selected in the table or sheet.
3. Select the insertion option you want to use.

   A row or column is inserted into the table.

Exercise

- **Exercise File:** SalesReps10-2 xlsx
- **Exercise:** Add a row to the bottom of the table and enter this data: Martinez Elsa North Manager 21000
  Add two columns to the right of the Sales column.

  (Continue with the rest of the exercise if you would like to practice entering data and formulas.)
  In the first new column, enter this data:
  Commission % .05 .10 .05 .05 .10
  Select the Commission % column and apply Percent Style number formatting to the cells.
  In the last column, enter "Commissions" as the header and apply Decimal number formatting to the column. Decrease the decimal to show no decimal places.
  In cell G2, enter the formula =E2*F2. (You do not need to copy the formula down to G6: the calculated table columns feature copies the formula to the rest of the column cells for you.)



	A	B	C	D	E
1	Last	First	Region	Position	Sales
2	Dahl	Ron	North	Senior Manager	18,000
3	Brown	Clem	South	Manager	20,000
4	Winters	Denise	North	Associate	22,000
5	Sweet	Tamara	South	Associate	24,000
6					
7					

Figure 10-2: Resizing a table using the sizing handle.

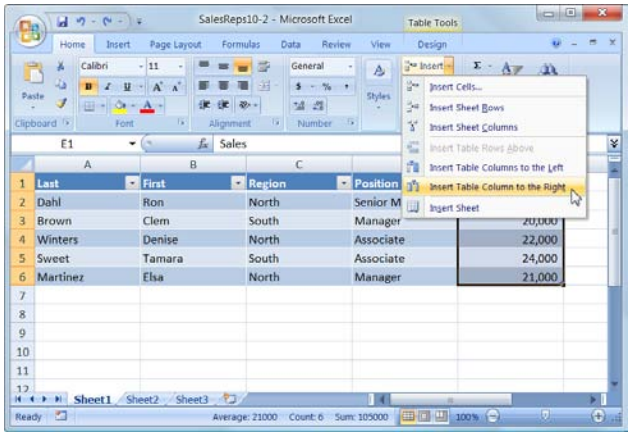

SalesReps10-2 - Microsoft Excel
Table Tools
Insert Cells...
Insert Sheet Rows
Insert Sheet Columns
Insert Table Rows Above
Insert Table Columns to the Left
Insert Table Column to the Right
Insert Sheet
Last First Region Position Sales
Dahl Ron North Senior M 18,000
Brown Clem South Manager 20,000
Winters Denise North Associate 22,000
Sweet Tamara South Associate 24,000
Martinez Elsa North Manager 21,000
Sheet1 Sheet2 Sheet3

Figure 10-3: Adding a table column.

Other Ways to Insert a Table Row Or Column: Right-click the row or column where you want to add a row or column, point to **Insert** in the contextual menu, and select **Insert Table Rows Above** or **Insert Table Columns to the Left** or **Right**. Or, to add a new row to the bottom of the table, place the cell pointer in the last cell of the table and press **<Tab>**.

Delete table rows and columns

You can also delete unwanted table rows and columns.

1. Select the table row(s) or columns(s) you want to delete.

2. Click the **Home** tab on the Ribbon and click the **Delete** button list arrow in the Cells group.

3. Select **Delete Table Columns** or **Delete Table Rows**.

   The selected row(s) or column(s) are deleted.

   Other Ways to Delete a Table Row or Column: Right-click the row or column you want to delete, point to **Delete** in the contextual menu, and select **Table Columns** or **Table Rows**.

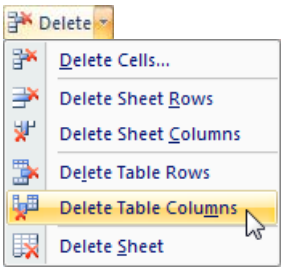


Figure 10-4: Deleting a column using the Delete button list arrow.

Working with the Total Row

With the Total Row feature, Excel will automatically add a total row to the bottom of a table and sum the last column of the table. The total row can also perform other types of calculations.

Add a Total row

1. Select a cell in the table.

   Table Tools appear on the Ribbon.

2. If necessary, click the **Design** contextual tab under Table Tools on the Ribbon.

   Now you have access to commands that can help you change the design of your table.

3. Click the **Total Row** option in the Table Style Options group so that it is selected.

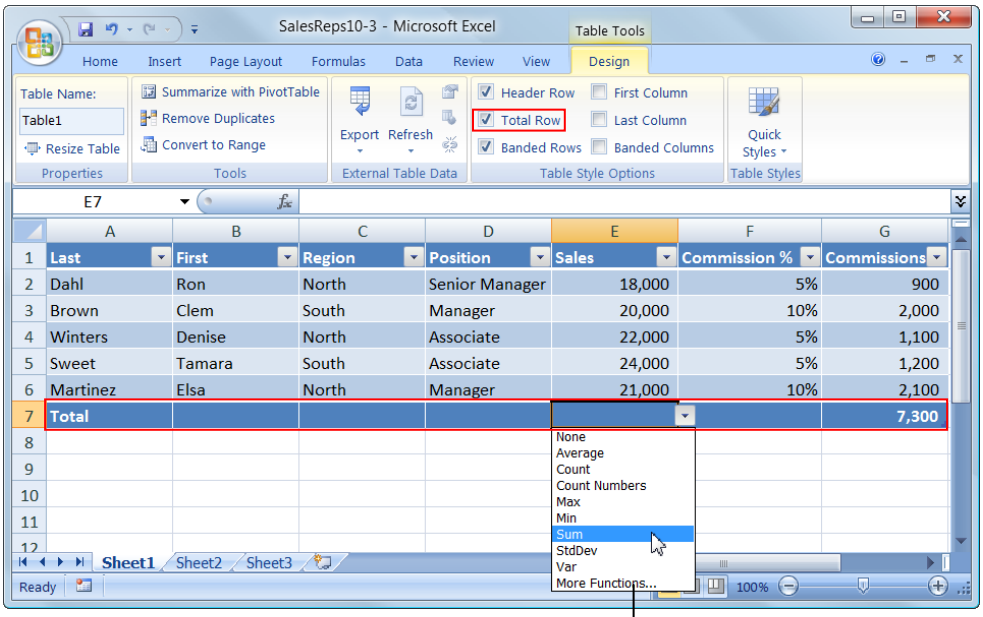
   A Total row appears at the bottom of your table and the last column is summed.

   Tip: If the last column doesn't contain numbers, Excel displays a count of the number of items in the column.

Exercise

- **Exercise File:** SalesReps10-3 xlsx
- **Exercise:** Add a Total row to the table.
  Calculate the Sum of the Sales column and the Average of the Commission % column.

Figure 10-5: The table with the Total row added to the bottom of the table.



Click the list arrow for a cell in the Total row to view common functions you can do with the table column's values.

Calculate Total row values

Once you've added a total row, you can decide what type of calculation you want to perform for the total of each table column.

1. In the Total row, select the cell at the bottom of the column that contains values you want to calculate.

2. Click the cell's list arrow and select the calculation you want to perform.

   Table 10-2: Total Row Calculation Options describes the different types of calculations that Excel can perform in the Total row.

Table 10-2: Total Row Calculation Options

None	No function is inserted.
Average	Calculates the average, or arithmetic mean, of the numbers in the column.
Count	Counts the number of all nonblank cells, regardless of what they contain.
Count Numbers	Counts the number of cells that contain numbers, including dates and formulas. Ignores all blank cells and cells that contain text or errors.
Max	Returns the largest value in a column.
Min	Returns the smallest value in a column.
Sum	Adds all of the numbers in a column.
StdDev	Estimates standard deviation based on a sample. The standard deviation is a measure of how widely values are dispersed from the average value.
Var	Estimates variance based on a sample.
More Functions…	Opens the Insert Function dialog box, where you can choose a different function to perform on the column's values.

Working with Table Data

Working with data is made easier by using a table. The advantages include: automatic filtering and sorting, calculated columns, and structured references.

Filter and sort in a table

When you create a table, a filter button that looks like an arrow is added to the header of each column in the table. You can use this arrow to quickly filter and sort the table columns.

1. Click the **filter button** for the column you want to filter or sort.

   A list appears, displaying several options for sorting or filtering the table data. The options at the top are for sorting. The options at the bottom are for filtering.

2. Select the filter or sort option you want to use.

   Tip: If you add or edit data in a table that is filtered or sorted, you need to click the **Reapply** button in the Sort & Filter group on the Data tab to include the new or edited data.

3. Click **OK**.

Use calculated columns

When you enter a formula in a blank column of a table, the formula is automatically extended to all the rest of the column—without using the AutoFill feature. If you add rows to the column, the formula appears in those rows as well.

1. Select a cell in a blank table column.

   This column will become a calculated column.

2. Enter the formula you want to use.

   The formula automatically appears in every row in that column.

Tips

- ✓ If you edit a formula in a calculated column, the change flows to all the rows. However, if you enter data other than a formula in one of the cells, it creates an exception, and the edit does not flow to the other rows. At this point, any more edits of any type will not flow to the other rows.

Exercise

- **Exercise File:** SalesReps10-4 xlsx
- **Exercise:** Filter the table to show only North region sales reps. Remove the filter and sort the Sales from largest to smallest.
  Add a new row below Ron Dahl. Note that the calculated columns feature copies the formula from column G into the new cell.
  Copy all Ron Dahl's data into the new row. Remove this duplicate row using the Remove Duplicates feature.

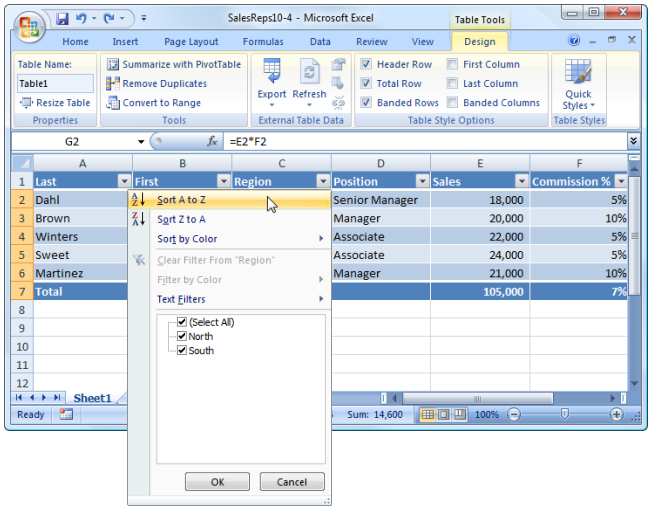


Figure 10-6: Sorting data in a table.

Structured references

Structured references allow you to work easily with cell references and formulas in a table. For example, instead of using a cell range reference such as C2:C6 in a formula, you can refer to the cell range as SaleAmt (the table column name) instead.

When you create a formula using structured references, you can use several different elements in place of the regular arguments. These include the table name, column header names, or special items that refer to areas of the table, such as a total row.

> **Tip:** When entering references in a formula in a table, if you click on the cells to select them (instead of typing in their cell addresses) Excel will enter structured references for you.

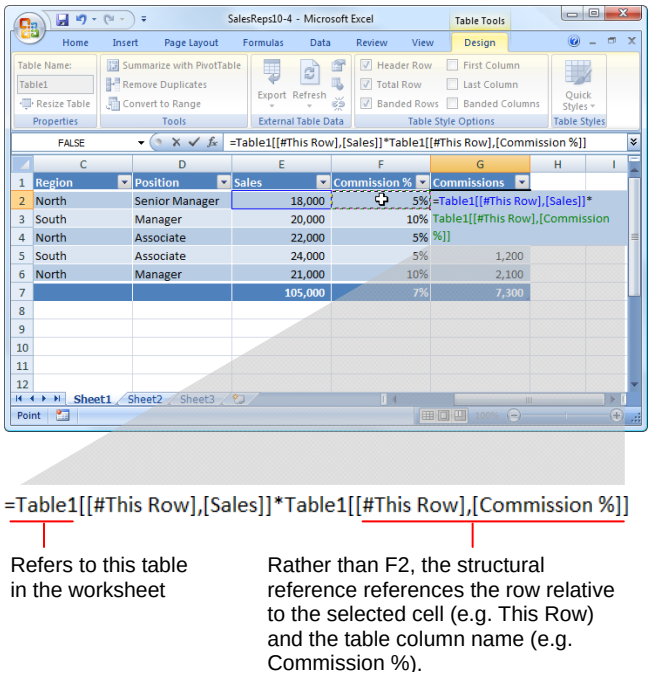


Figure 10-7: This example displays the structural references in the formula of cell G2.

Remove duplicate rows of data

If there are duplicate rows of identical data in your table, Excel can find and remove the duplicate rows for you.

> **Trap:** Removing duplicate values actually deletes the duplicate data, so you may want to copy the data to another worksheet or workbook first.

1. Select a cell in the table.

   > **Tip:** You can remove duplicates from cell ranges outside of a table as well, but in that case you need to select the entire cell range you want to examine.

2. Click the **Data** tab on the Ribbon and click the **Remove Duplicates** button in the Data Tools group.

   The Remove Duplicates dialog box appears.

   > **Other Ways to Display the Remove Duplicates Dialog Box:**
   > Select a cell in the table. Under Table Tools on the Ribbon, click the **Design** tab. Click the **Remove Duplicates** button in the Tools group.

3. Select the columns you want to check for duplicates.

   All columns are selected by default, but you can select/deselect individual columns in the Columns list. You can also use the Select All and Unselect All buttons to select columns.

4. Click **OK**.

   Duplicate values are deleted and a message appears, telling you how many duplicate values that were found and removed.

5. Click **OK**.

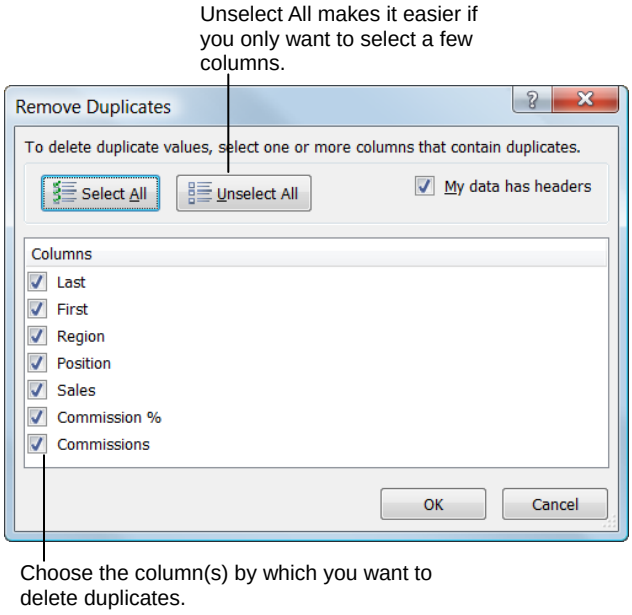


Figure 10-8: The Remove Duplicates dialog box.

Summarizing a Table with a PivotTable

You can analyze table data by using it in a pivot table.

1. Select a cell in the table.

   The Table Tools appear on the Ribbon.

2. Under Table Tools on the Ribbon, click the **Design** contextual tab and click the **Summarize with PivotTable** button in the Tools group.

   The Create PivotTable dialog box appears.

3. Click **OK**.

   A new sheet is added to the workbook to accommodate the PivotTable report. Here you can create a PivotTable to analyze the data in your table, according to your specifications.

   Tip: Other lessons describe how to work with PivotTables in more detail. This is the simplest way to view a summary of the table in a pivot table.

Exercise

- **Exercise File:** SalesReps10-5 xlsx
- **Exercise:** Summarize the table with a PivotTable on a new worksheet. Experiment with the PivotTable tools, then delete the worksheet containing the PivotTable.

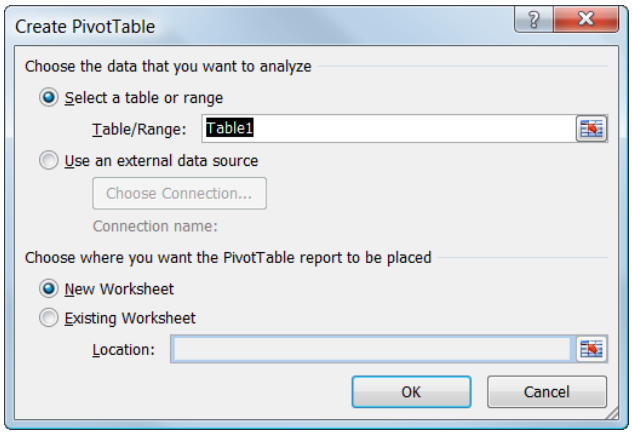
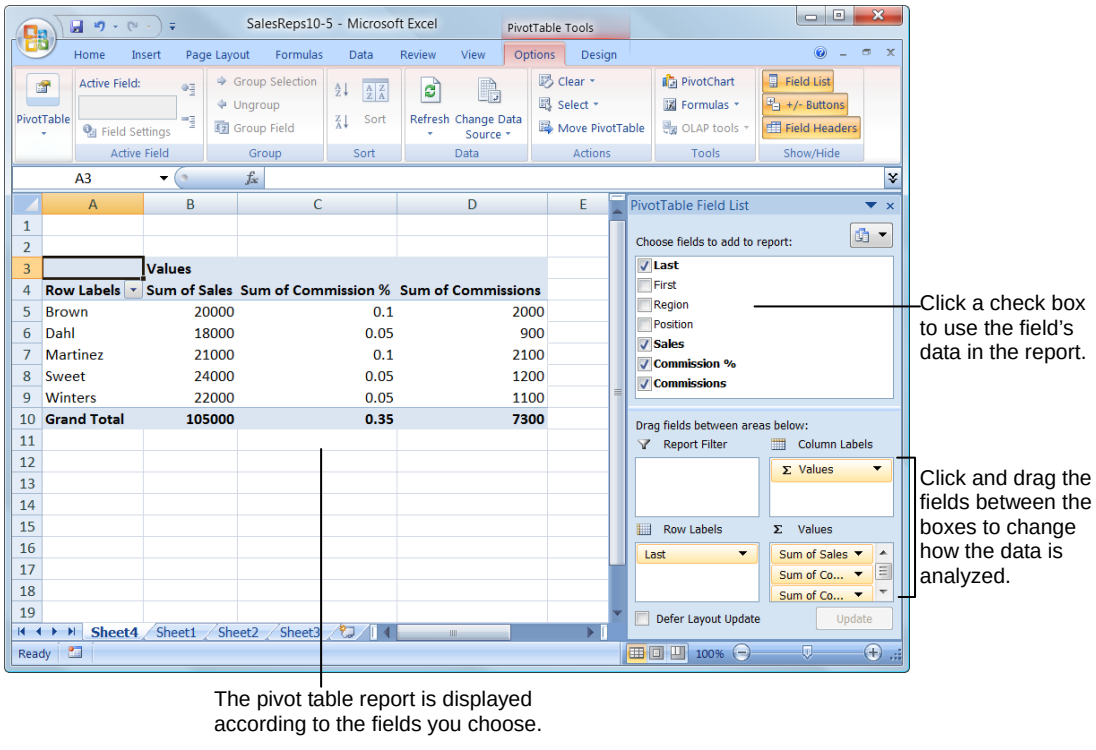


Figure 10-10: The Create PivotTable dialog box.



Row Labels	Sum of Sales	Sum of Commission %	Sum of Commissions
Brown	20000	0.1	2000
Dahl	18000	0.05	900
Martinez	21000	0.1	2100
Sweet	24000	0.05	1200
Winters	22000	0.05	1100
Grand Total	**105000**	**0.35**	**7300**

Figure 10-9: Summarizing table data with a PivotTable.

Using the Data Form

In past versions of Excel, you may have edited or entered new table records or searched for records in tables using the data form dialog box. In Excel 2007, the Data Form has been excluded from the Ribbon. However, you can still use it if you add it to the Quick Access toolbar.

Add the Data Form command

1. Click the **Customize Quick Access Toolbar** button on the Quick Access Toolbar and select **More Commands**.

   The Excel Options window opens, displaying the Customize section.

2. Click the **Choose commands from** list arrow and select **Commands Not in the Ribbon**.

   The list of options changes in the list below.

3. In the commands list, select select **Form**. Click the **Add** button.

   "Form" is added to the list on the right. This list displays the commands that are currently displayed on the Quick Access Toolbar.

4. Click **OK**.

   The command appears on the Quick Access Toolbar.

Tips

✓ To remove the Data Form from the Quick Access Toolbar, right-click the **Form** button on the Quick Access Toolbar and select **Remove from Quick Access Toolbar**.

Use the Data Form

Once you've added the Form command to the Quick Access Toolbar, you're ready to use it to edit your table.

1. Select a cell in the table.

2. Click the **Form** button on the Quick Access Toolbar.

   The data form dialog box appears and you can use it to edit your table.

Exercise

- **Exercise File:** SalesReps10-6 xlsx
- **Exercise:** Add the Form button to the Quick Access Toolbar and use the Data Form to change "Tamara" to "Tammy" in the table. Remove the Form button from the Quick Access Toolbar.

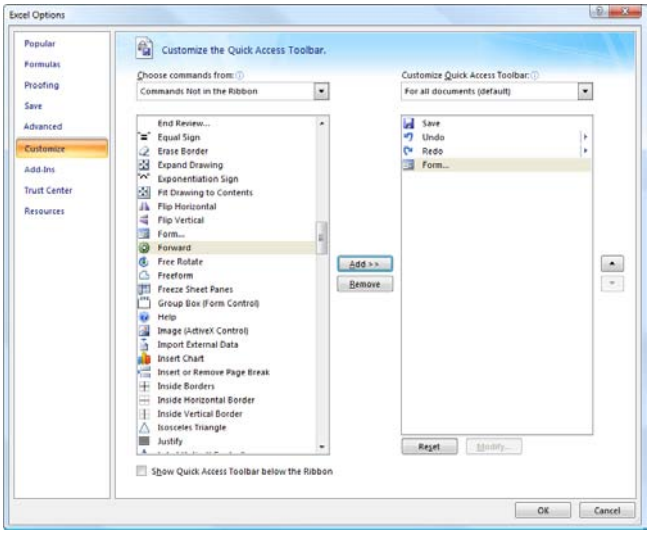


Figure 10-11: Adding the Data Form command to the menu.

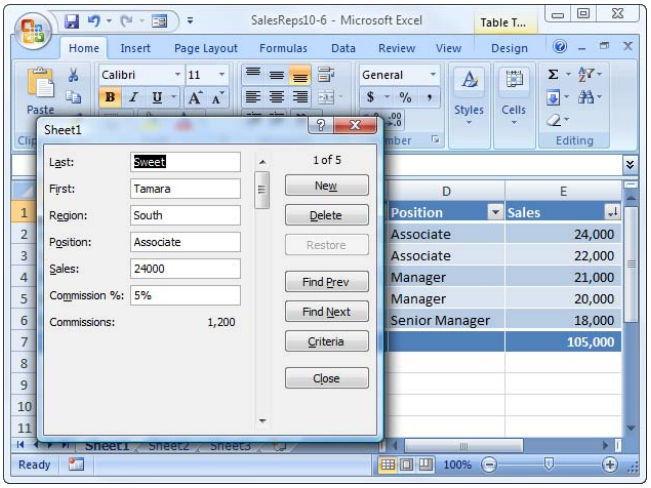


Figure 10-12: Using the Data Form to enter data.

Using Table Styles

You can format cell ranges as tables and apply preset table formatting styles.

Apply a style while creating a table

You can apply a style while also creating a table.

1. Select a cell range that you want to format as a table.
2. Click the **Home** tab on the Ribbon and click the **Format as Table** button in the Styles group.

   The table format gallery appears. Here you can select styles from the Light, Medium, or Dark categories. You may need to scroll down the list to see the Dark category.
3. Select a table style.

   The Format As Table dialog box appears.
4. Click **OK**.

   A table is created and formatted with the selected style. Table Tools appear on the Ribbon, and the Design contextual tab appears.

Apply a different style to an existing table

1. Select a cell in the table.
2. Under Table Tools on the Ribbon, click the **Design** tab.
3. Select the style you want to use in the Table Styles group.

   Tip: To display the entire Table Styles gallery, click the **More** button in the Table Styles group.

Remove a table style

You can easily remove a table style from a table.

1. Select the table that is formatted with the table style.

   The Design tab appears.
2. Under Table Tools on the Ribbon, click the **Design** tab.
3. Click the **None** style or select **Clear** in the Table Styles group.

   The table format is removed.

Exercise

- **Exercise File:** SalesReps10-7 xlsx
- **Exercise:** Apply Table Style Light 17 to the table.

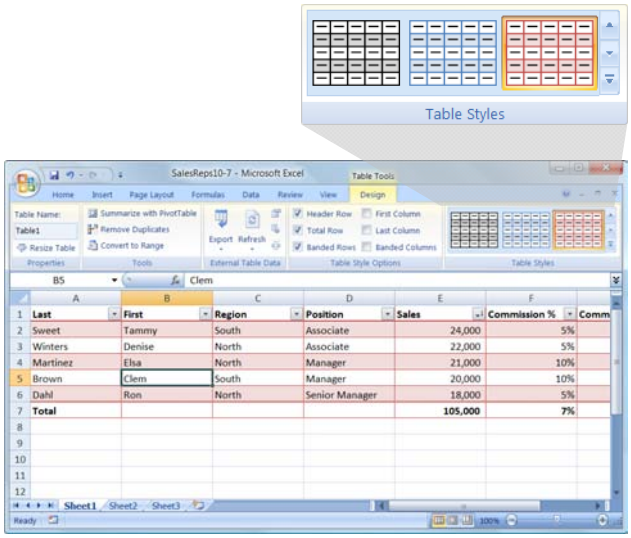


Table Styles
SalesReps10-7 - Microsoft Excel
Table Tools
Last First Region Position Sales Commission %
Sweet Tammy South Associate 24,000 5%
Winters Denise North Associate 22,000 5%
Martinez Elsa North Manager 21,000 10%
Brown Clem South Manager 20,000 10%
Dahl Ron North Senior Manager 18,000 5%
Total 105,000 7%

Figure 10-13: Applying a style to a table using the Table Styles group.

Using Table Style Options

Besides applying table styles, you can format individual table style elements.

1. Select a cell in the table.

2. Under Table Tools on the Ribbon, click the **Design** tab.

The formatting options available in the Table Style Options group include:

- **Header Row:** Toggles the table's header row on and off.
- **Total Row:** Adds a total row to the bottom of the table. This option doesn't just change formatting, but also allows you to calculate values in the total row.
- **First/Last Column:** Displays special formatting for the first or last columns in the table.
- **Banded Rows/Columns:** Displays odd and even rows and columns differently for easier reading.

3. Select the option(s) you want to use in the Table Style Options group.

Exercise

- **Exercise File:** SalesReps10-8 xlsx
- **Exercise:** Select the First Column and Last Column options in the Table Style Options group.

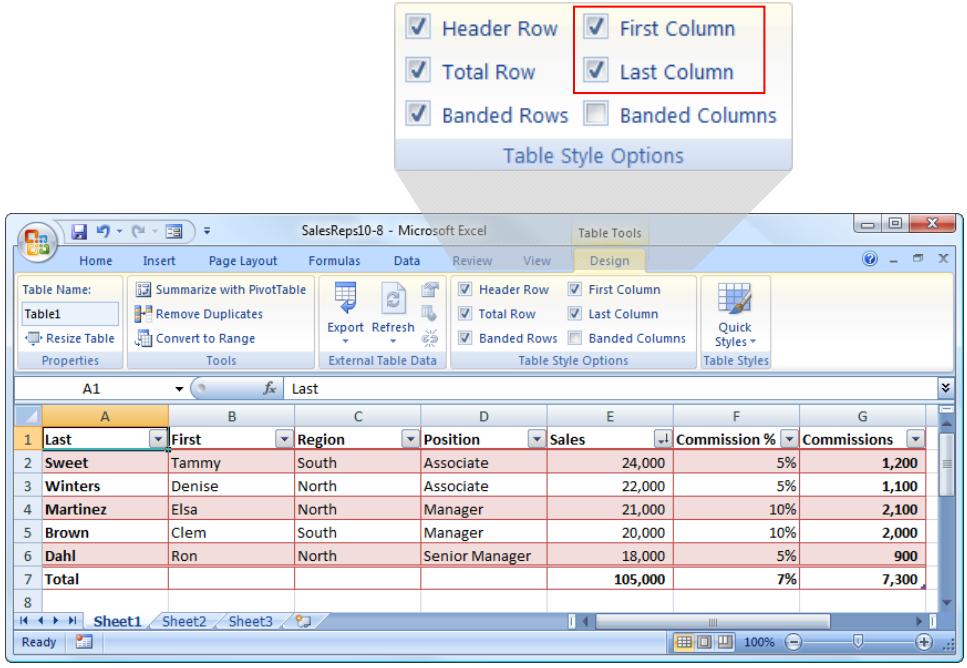


Figure 10-14: A table with the First Column (A) and Last Column (G) selected.

Creating and Deleting Custom Table Styles

Besides using the table styles included in Excel, you can create your own custom ones. Custom table styles are stored only in the workbook where you created them—they won't appear in your other workbooks.

Create a custom table style

1. Click the **Home** tab on the Ribbon and click the **Format as Table** button in the Styles group.

2. Select **New Table Style**.

   The New Table Quick Style dialog box appears.

   Other Ways to Display the New Table Quick Style Dialog Box:
   Select an existing table, click the **Design** tab on the Ribbon and click the **More** button in the Table Styles group. Select **New Table Style**.

3. Type a name for the style in the Name text box.

   Now set the formatting for the table elements.

4. Select an element in the Table Element list, then click **Format**.

   The Format Cells dialog box appears. Formatting options selected here will make up the new style.

5. Select formatting options from the Font, Border, and Fill tabs. Click **OK**.

   As you make formatting changes, the Preview area of the New Table Quick Style dialog box shows you how your new table style will look.

   Tip: Remove formatting options from a table element by selecting the element in the Table Element list and clicking **Clear**.

6. Repeat steps 4 and 5 for additional elements.

   Tip: Click the "Set as default table quick style for this document" check box to make the new table style the default style for the workbook.

7. Click **OK**.

   Once you've created a custom table style, it's available for use along with the other table styles in the table styles gallery.

Exercise

- **Exercise File:** SalesReps10-9 xlsx
- **Exercise:** Create a custom table style and give it your name. Choose your own desired fonts, borders, and fill formatting for the table elements.
  Apply your new custom table style to the table.
  Delete the custom table style from the table styles gallery.

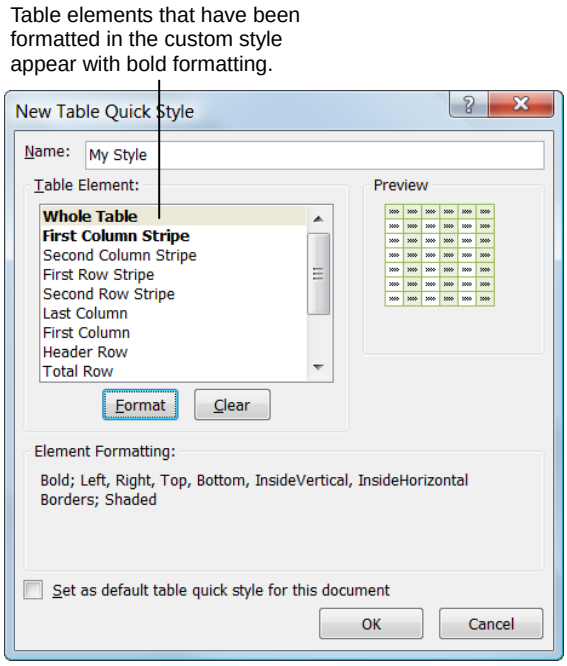


Figure 10-15: The New Table Quick Style dialog box.

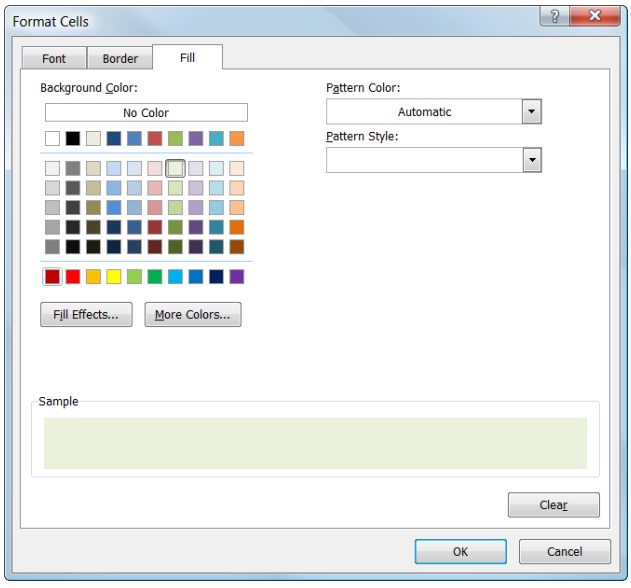


Figure 10-16: The Fill tab of the Format Cells dialog box.

Modify a custom table style

1. Click the **Home** tab on the Ribbon and click the **Format as Table** button in the Styles group.

   The table styles gallery appears.

2. Right-click the style you want to modify in the Custom section and select **Modify**.

   The Modify Table Quick Style dialog box appears.

3. Modify the style as desired, then click **OK**.

   Tip: You can also duplicate a preset table style and modify it as desired. Right-click the table style in the table styles gallery and select **Duplicate**.

Delete a custom table style

1. Click the **Home** tab on the Ribbon and click the **Format as Table** button in the Styles group.

   The table styles gallery appears.

2. Right-click the style you want to delete in the Custom section and select **Delete**.

   A dialog box appears, asking you to confirm deleting the custom table style.

3. Click **OK**.

   The custom style is removed, and the table returns to its previous style.

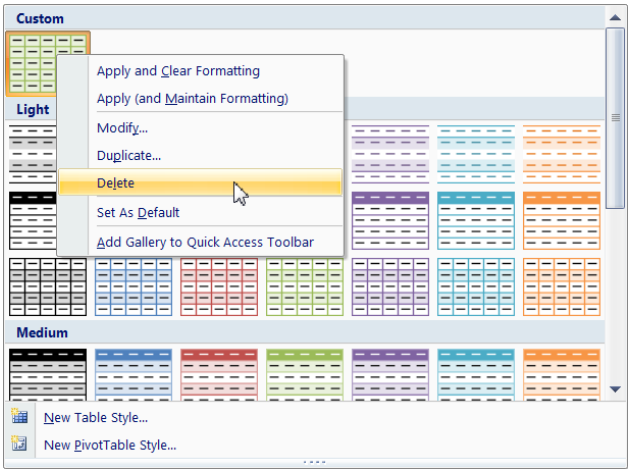


Figure 10-17: Deleting a custom table style.

Convert or Delete a Table

If you no longer want a table, you can turn it back into a normal range or delete it and its contents entirely.

Convert a table to a cell range

1. Select a cell in the table.

   Under Table Tools on the Ribbon, the Design contextual tab appears.

2. Under Table Tools on the Ribbon, click the **Design** contextual tab and click the **Convert to Range** button in the Tools group.

3. Click **Yes**.

   The table converts back to a normal range of cells, although the table formatting is still applied.

   Other Ways to Convert a Table to a Range: Select the table, right-click the table and select **Table** → **Convert to Range** from the contextual menu.

Delete a table

1. Select the table you want to delete.

2. Press the **<Delete>** key.

   The table and its contents are deleted.

Exercise

- **Exercise File:** SalesReps10-10 xlsx
- **Exercise:** Convert the table back to a normal range of cells.
  Undo that action.
  Delete the table entirely.

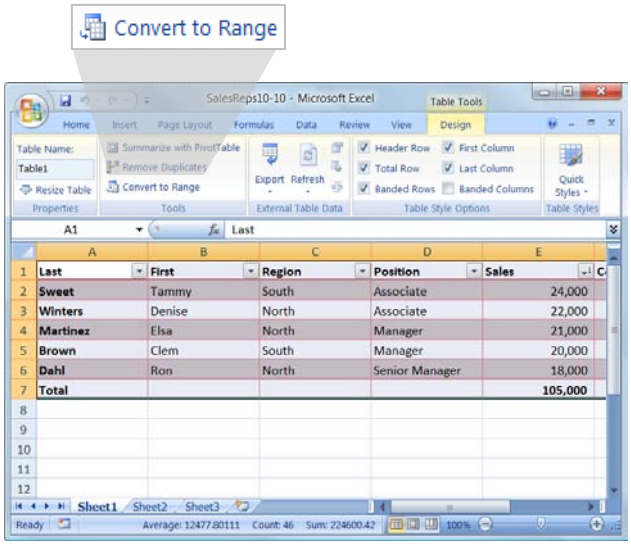


Figure 10-18: The Convert to Range button.

11

Working with PivotTables

Creating a PivotTable 161

Specifying PivotTable Data 162
Add fields 162
Rearrange fields 162

Changing a PivotTable's Calculation 163

Filtering and Sorting a PivotTable 164
Filter a PivotTable 164
Sort a PivotTable 164

Working with PivotTable Layout 165
Adjust PivotTable Field List layout 165
Show/Hide PivotTable elements 165
Layout group on the Design tab 166

Grouping PivotTable Items 167
Group dates or times 167
Group numeric items 167
Group other selected items 167
Ungroup items 168

Updating a PivotTable 169
Refresh PivotTable data 169
Change PivotTable data source 169

Formatting a PivotTable 170
Apply a built-in style 170
Work with style options 170

Creating a PivotChart 171

There are many ways to analyze worksheet data, including sorting and filtering records. This chapter explains how to use a PivotTable to analyze data ranges.

A PivotTable is usually the best way to summarize and analyze data ranges or tables. PivotTables are good for grouping or expanding levels of data, switching columns and rows ("pivoting" data), and filtering and sorting. They lend themselves particularly well to summarizing long lists of data that need to be summed.

This chapter explains how to create PivotTables, modify their structure, and create PivotCharts that graphically illustrate PivotTables.

Using Exercise Files

This chapter suggests exercises to practice the topic of each lesson. There are two ways you may follow along with the exercise files:

- Open the exercise file for a lesson, perform the lesson exercise, and close the exercise file.
- Open the exercise file for a lesson, perform the lesson exercise, and keep the file open to perform the remaining lesson exercises for the chapter.

The exercises are written so that you may "build upon them", meaning the exercises in a chapter can be performed in succession from the first lesson to the last.

Creating a PivotTable

To create a PivotTable, you need to decide which fields you want to include, how you want your PivotTable organized, and what types of calculations your PivotTable should perform.

Don't worry if PivotTables are confusing at first, they will make a lot more sense once you've actually created one.

1. Select a cell in a data range.

Other Ways to Create a PivotTable: Select a cell in a table, click the **Design** tab on the Ribbon, and click the **Summarize with Pivot** button in the Tools group.

2. Click the **Insert** tab on the Ribbon and click the **PivotTable** button in the Tables group.

The Create PivotTable dialog box appears and a moving dashed line appears around the data range that Excel will use for the PivotTable.

Tip: The data range doesn't have to be in the current workbook. Select the **Use an external data source** option to select data outside the workbook.

3. If the data range isn't correctly selected, select the data range you want to analyze, including column labels.

Next you need to decide if you want to display the PivotTable in a new worksheet or one that already exists in your workbook.

4. Select where you want the PivotTable report to be placed.

Tip: If you select Existing Worksheet, click the **Collapse Dialog** button and select the worksheet and upper-left cell of the range where you want to put the PivotTable.

5. Click **OK**.

The Excel window changes to display the structure for a new PivotTable, along with the PivotTable Field List task pane. No data has been pulled into the PivotTable yet—you'll need to use the task pane to tell Excel how you want to lay out the PivotTable.

Tips

✓ You can change how the PivotTable Field List task pane looks. Click the button arrow near the top right corner of the task pane and select a layout option.

Exercise

- **Exercise File:** TripSales11-1 xlsx
- **Exercise:** Create a PivotTable on a new worksheet using the data from the Promotion Sales worksheet.

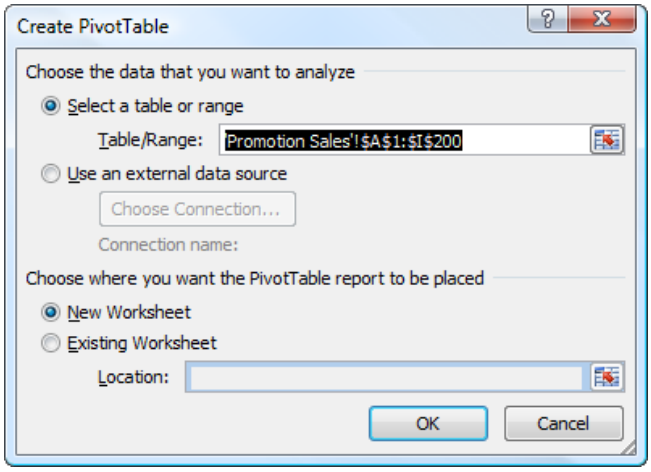


Figure 11-1: The Create PivotTable dialog box.

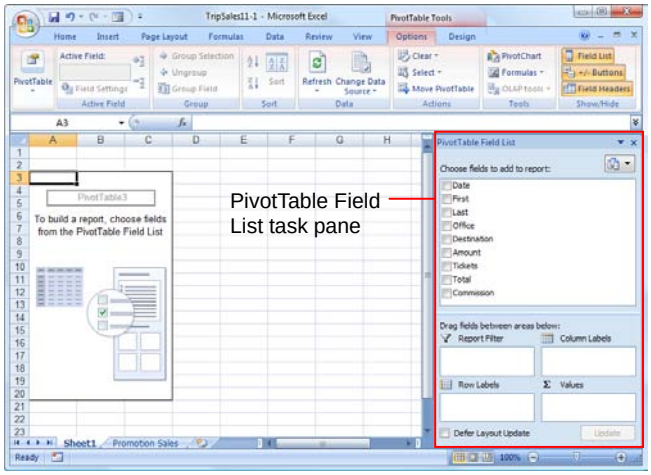


Figure 11-2: Creating a new PivotTable.

Specifying PivotTable Data

Once you've created your PivotTable, you have to specify the data you want to analyze. You'll simply select the fields you want to display in the PivotTable Field List, then adjust the layout by dragging them between the desired report areas at the bottom of the task pane. You're not going to understand how to do this unless you try it—so let's get started!

Add fields

1. Click the check boxes next to the fields you want to use as data in the PivotTable.

   By default, nonnumeric fields are added to the Row Labels area, numeric fields are added to the Values area, and OLAP date and time hierarchies are added to the Column Labels area. However, the fields can be rearranged to other areas.

   Other Ways to Add Fields:
   Right-click a field name and select the layout area to which you want to add the field. Or, click and drag a field name into a layout section.

Rearrange fields

1. Click and drag fields between the areas in the task pane to reposition the PivotTable layout.

Tips

- ✓ Drag a field between the Row Labels and Column Labels boxes to change the orientation of the PivotTable.
- ✓ You can change PivotTable labels by typing a new label.

Exercise

- **Exercise File:** TripSales11-2 xlsx
- **Exercise:** Add the Office, Destination, and Tickets fields to the PivotTable.
  Move the Office field to the Column Labels area.
  Switch the positions of the Office and Destination fields.

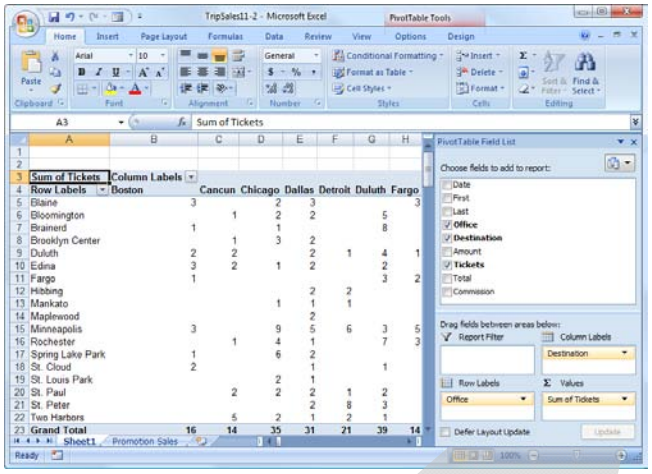


Figure 11-3: A PivotTab
with data.

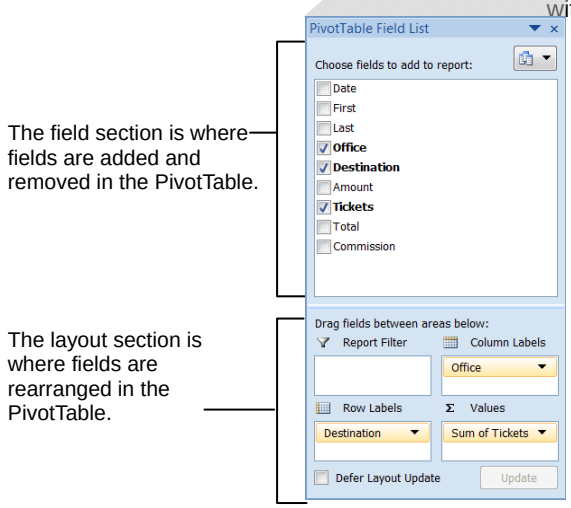
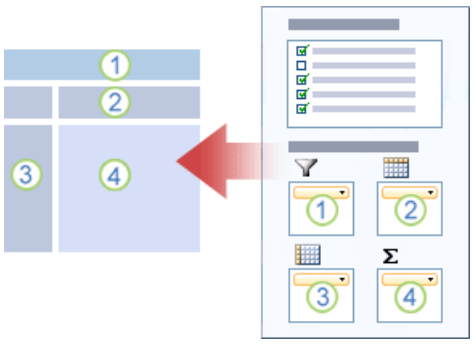


Figure 11-4: This diagram illustrates how areas in the PivotTable Field List correspon



1	The report filter area. Move a field to this area, then select the criteria by which you want to filter the PivotTable.
2	The Column Label area. These are the
3	Row 3

Changing a PivotTable's Calculation

Besides adjusting the layout of your PivotTable data, you can also change how a PivotTable summarizes values. For example, you might want a PivotTable to display averages instead of totals.

1. Make sure the cell pointer is located in the PivotTable.

To change the calculation in a PivotTable, you need to change the value field settings.

2. Under PivotTable Tools on the Ribbon, click the **Options** tab and click the **Field Settings** button in the Active Field group.

The Value Field Settings dialog box appears, displaying the "Summarize by" tab. Here you can select calculation options including Sum, Count, Average, or Max, among others.

3. Select the type of calculation you want to use to summarize the value data from the list.

4. Click **OK**.

The summarized value data in the PivotTable changes to using the new calculation.

Exercise

- **Exercise File:** TripSales11-3 xlsx
- **Exercise:** Change the calculation of the Tickets field from Sum to Max.

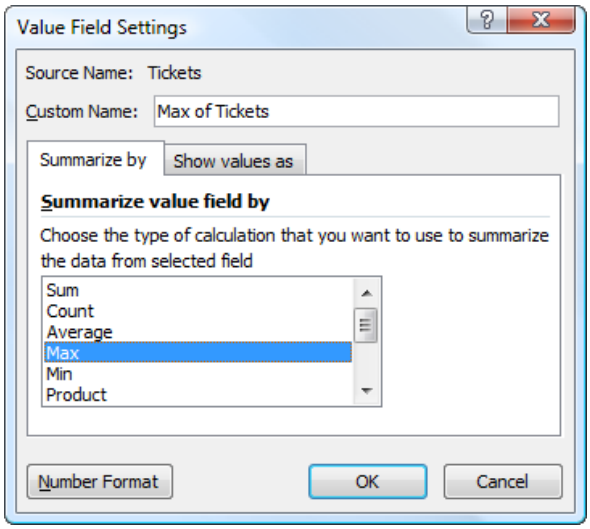


Figure 11-5: The Value Field Settings dialog box.

Filtering and Sorting a PivotTable

Much like you can with basic data ranges and tables in Excel, you can filter and sort data in a PivotTable.

Filter a PivotTable

Filtering a PivotTable allows you to display only the data that meets your filter criteria.

1. Select a cell in the PivotTable.

   The Options and Design tabs appear under PivotTable Tools on the Ribbon.

2. Click the filter button for a row or column label.

   A list sorting and filtering options appears. The bottom area of the list displays criteria by which you can filter.

3. At the bottom of the list, click the check boxes next to the fields you want to filter out to uncheck them.

   Fields with checkmarks next to them will remain, while those without checkmarks will be filtered out.

4. Click **OK**.

   The PivotTable is updated.

   Other Ways to Filter a PivotTable:
   Drag a field into the Report Filter area of the PivotTable Field List task pane. This field now appears above the PivotTable in the worksheet with a filter button arrow. Click this filter arrow button and select what you want to filter by. Or, click a filter button, point to **Label Filters** or **Values Filters**, and select a filtering option.

Sort a PivotTable

1. Select a cell in the PivotTable.

   The Options and Design tabs appear under PivotTable Tools on the Ribbon.

2. Click a filter button.

   Here you'll see sort options at the top of the list, along with the filter options toward the bottom.

3. Select a sort option.

   Other Ways to Sort:
   Click the **Options** tab under PivotTable Tools on the Ribbon. Click the button you want to use in the Sort group.

Exercise

- **Exercise File:** TripSales11-4 xlsx
- **Exercise:** Next, use the Row Labels filter button to display only records from Blaine. Display all the records. Try another way to filter: Add the Commission field to the Report Filter area of the PivotTable Field List and filter the PivotTable so only commissioned sales appear. Display all records again.
  Sort the PivotTable by Office from Z to A, then sort again from A to Z.

The filter button changes to make you aware that a filter has been applied.

	A	B	C	D	E	F
3	Sum of Tickets	Column Labels				
4	Row Labels	Boston	Chicago	Dallas	Fargo	Grand Total
5	Blaine	3	2	3	3	11
6	Grand Total	3	2	3	3	11
7						

Figure 11-6: The PivotTable filtered to display only "Blaine" records.

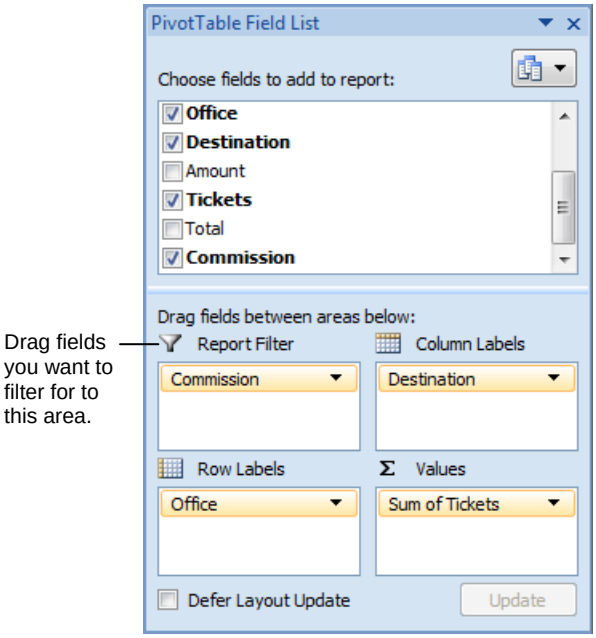


Figure 11-7: Adding a field to the Report Filter area.

Working with PivotTable Layout

There are several options for altering the layout of your PivotTable and the PivotTable Field List task pane.

Adjust PivotTable Field List layout

You can change the layout of the PivotTable Field List makes it easier to work with. For example, you can display only the fields section if you have a long list of fields to choose from. Or, if you are done setting up the PivotTable, you can display only the area section.

1. Select a cell in the PivotTable.

   The PivotTable Field List task pane appears.

2. Click the **layout** button at the top of the PivotTable Field List task pane and select a layout option.

   You can choose to display only the fields section, only the report areas section, or both sections in different arrangements. Table 11-1: PivotTable Field List Layout Options has more information about these arrangements.

Show/Hide PivotTable elements

You can change which elements are displayed in the PivotTable.

1. Select a cell in the PivotTable.

   The Options and Design tabs appear under PivotTable Tools on the Ribbon.

2. Under PivotTable Tools on the Ribbon, click the **Options** tab.

   The Show/Hide group contains three buttons. By default, they are all shown in the PivotTable.

   - **Field List:** Show or hide the PivotTable Field List task pane.
   - **+/- Buttons:** Show or hide the +/- buttons that allow you to expand or collapse multi-level PivotTable items.
   - **Field Headers:** Show or hide column and row field headers.

3. Click the button you want to use in the Show/Hide group.

   If the button is an orange color, the element is displayed in the PivotTable. If the button is not orange, the element is hidden.

Exercise

- **Exercise File:** TripSales11-5 xlsx
- **Exercise:** Change the layout of the PivotTable Field List so the field and area sections are side-by-side. Then change them back to stacked.
  In the Show/Hide group, hide the Field List and Field Headers, then show both again.
  In the Layout group, turn off the row and column grand totals, then put them back again.
  Change the report layout to Tabular Form.

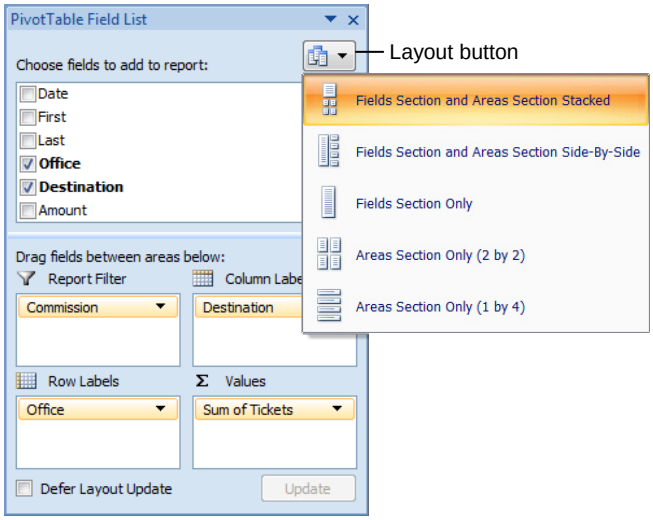


Figure 11-8: Changing PivotTable Field List layout.

Table 11-1: PivotTable Field List Layout Options

	This is the default layout. The fields are stacked above the areas.
	The fields appear side by side with the areas. This is useful if there is a long list of fields to choose from.
	Only the fields list is displayed. This is ideal if you only need to work with adding fields to the PivotTable report.
	Only the areas are displayed (2 by 2). This is ideal if the fields you want have been added and you want to work with the report's layout.
	Only the areas are displayed (1 by 4). This is ideal if the fields you want have been added and you want to work with the report's layout.

Layout group on the Design tab

The Layout group on the Design tab allows you to change what elements appear on the PivotTable.

1. Select a cell in the PivotTable.

   The Options and Design tabs appear under PivotTable Tools on the Ribbon.

2. Under PivotTable Tools on the Ribbon, click the **Design** tab.

   Here you can see the Layout group. It contains four buttons:

   - **Subtotals:** Click to show or hide subtotals, and to specify where to show them.
   - **Grand Totals:** Click to show or hide grand totals, and to specify whether they appear for rows, columns, or both.
   - **Report Layout:** Show the PivotTable in compact, outline, or tabular form.
   - **Blank Rows:** insert or remove a blank line between each grouped item in the PivotTable.

3. Click the button you want to use in the Layout group.

   A list of options appears, depending on the button that was selected.

4. Select an option from the list.

   The PivotTable layout is changed accordingly.

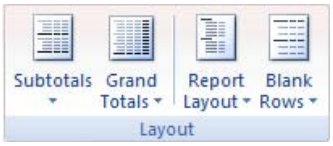


Figure 11-9: The Layout group on the Design tab. If the Ribbon is not wide enough, a Layout button will appear on the Ribbon instead of the group.

Grouping PivotTable Items

You can group PivotTable data in order to set it apart additional subsets of data. You can group most items, but dates are a common item to group. For example, you may want to group the information in the PivotTable by days, months, quarters, or years.

Group dates or times

1. Select the date or time field in the PivotTable.

   To select the field, click the name of the field in the PivotTable, such as the row or column header.

2. Under PivotTable Tools on the Ribbon, click the **Options** tab and click the **Group Field** button in the Group group.

   The Grouping dialog box appears.

3. Specify the starting and ending dates you want to group and the interval you want to group by.

   By default, the starting and ending dates are the first and last dates in the PivotTable.

4. Click **OK**.

   The grouping is applied to the PivotTable report.

   Tip: To group dates by weeks, select **Days** in the By area of the Grouping dialog box and enter 7 in the Number of days box.

Group numeric items

1. Select the numeric field in the PivotTable that contains the data you want to group by.

2. Under PivotTable Tools on the Ribbon, click the **Options** tab and click the **Group Field** button in the Group group.

   The Grouping dialog box appears.

3. Specify the starting and ending values you want to group and the interval you want to group by, then click **OK**.

Group other selected items

You can also group items that are not dates or numeric data, such as labels.

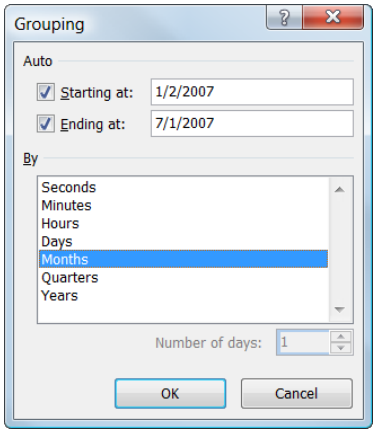
1. Select the items in the PivotTable that you want to group.

Exercise

- **Exercise File:** TripSales11-6 xlsx
- **Exercise:** First, set up the PivotTable for grouping: Remove the Office field from the Row Labels area of the PivotTable Field List. Move the Destination field to the Row Labels area. Add the Date field to the Column Labels area.
  Select cell B3 and group the dates by month. Then ungroup the dates.

	A	B	C	D	E	F
1	Commission	(All)				
2						
3	**Sum of Tickets**	**Date**				
4	**Destination**	**1/2/2007**	**1/3/2007**	**1/4/2007**	**1/5/2007**	**1/8/2007**
5	Boston	2				
6	Cancun					
7	Chicago		1			
8	Dallas				2	
9	Detroit				2	
10	Duluth			2		
11	Fargo					
12	Houston					
13	Lincoln					

1. Select the field by which you want to group. This example happens to group by the Date field.



2. Select the increment by which you want to group. This example will group the data so it is displayed by month, rather than by day.

	A	B	C	D	E	F	G
1	Commission	(All)					
2							
3	**Sum of Tickets**	**Date**					
4	**Destination**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**
5	Boston	6	1	3	2	2	2
6	Cancun	2	2	8			2
7	Chicago	5	7	9	9	5	
8	Dallas	4	4	10	4	4	5
9	Detroit	6		12	1	2	
10	Duluth	10	7	6	1	4	11
11	Fargo	2		4	1	7	
12	Houston	2	1	6	5		3
13	Lincoln	2	5	3	2		

3. The data for each month is grouped together under one column, rather than being shown as separate days.

Figure 11-10: Grouping the PivotTable dates by month.

2. Under PivotTable Tools on the Ribbon, click the **Options** tab and click the **Group Selection** button in the Group group.

   The items are grouped and collapse buttons appear so you can collapse or expand the group of data.

   Tip: You can also use this method to group specific items in a field.

Ungroup items

1. Select the items in the PivotTable that you want to ungroup.

2. Under PivotTable Tools on the Ribbon, click the **Options** tab and click the **Ungroup** button in the Group group.

   The items are ungrouped.

Updating a PivotTable

If you make changes to the source data a PivotTable is based on, the PivotTable isn't automatically updated. Instead you must manually refresh the PivotTable anytime you change its underlying source data. This lesson explains how to do that, as well as how to change the source of the data the PivotTable is based on.

Exercise

- **Exercise File:** TripSales11-7 xlsx
- **Exercise:** On the Promotion Sales worksheet, change the value in cell G2 to 5. Return to the PivotTable on Sheet1 and refresh the PivotTable.
  Change the PivotTable data source so that it uses only the range A1:G4 on the Promotion Sales worksheet.

Refresh PivotTable data

If you've made changes to the data what your PivotTable pulls from, you need to refresh the PivotTable to update it.

1. Select a cell in the PivotTable.

   The PivotTable Tools are displayed on the Ribbon.

2. Under PivotTable Tools on the Ribbon, click the **Options** tab and click the **Refresh** button in the Data group.

   The PivotTable updates to include any changes to the source data.

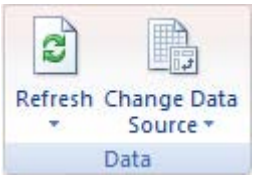


Figure 11-11: The Data group on the Options tab.

Change PivotTable data source

You can easily change which data is used by the PivotTable.

1. Select a cell in the PivotTable.

   The PivotTable Tools are displayed on the Ribbon

2. Under PivotTable Tools on the Ribbon, click the **Options** tab and click the **Change Data Source** button in the Data group.

   The Change PivotTable Data Source dialog box appears, along with the current data source—which has a moving dotted line around it.

3. Select a new data range.

4. Click **OK**.

   The PivotTable updates with the data from the new source range.

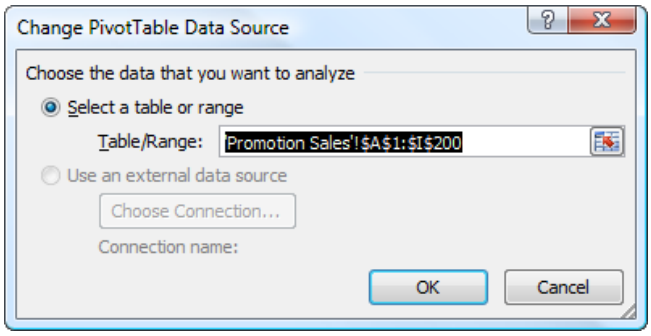


Figure 11-12: The Change PivotTable Data Source dialog box.

Formatting a PivotTable

You can quickly format a PivotTable with Excel's built-in styles and style options.

Apply a built-in style

1. Select a cell in the PivotTable.

   The PivotTable Tools are displayed on the Ribbon.

2. Click the **Design** tab and select a style in the PivotTable Styles group.

   The PivotTable is formatted with the style you selected.

   Tip: Click the **More** button in the PivotTable Styles group to display an expanded PivotTable Styles gallery.

Work with style options

Besides applying a style to the table, you can select PivotTable style options that allow you to adjust the format for a part of a PivotTable. For example, you can apply special formatting to row headers or make the columns banded.

1. Select a cell in the PivotTable.

   The PivotTable Tools are displayed on the Ribbon.

2. Click the **Design** tab and select an option in the PivotTable Style Options group.

   Here is a brief description of the style options you can select from in the PivotTable Style Options group:

   - **Row/Column Headers:** Displays special formatting for the first row or column of the PivotTable.
   - **Banded Rows/Columns:** Applies different formatting to alternate rows or columns.

Tips

✓ Besides using the formatting options on the Design tab, you can format a PivotTable using general formatting commands found on the Home tab.

Exercise

- **Exercise File:** TripSales11-8 xlsx
- **Exercise:** Apply Pivot Style Medium 24 from the PivotTable Styles gallery.
  Select the Banded Rows style option and deselect the Column Headers option.

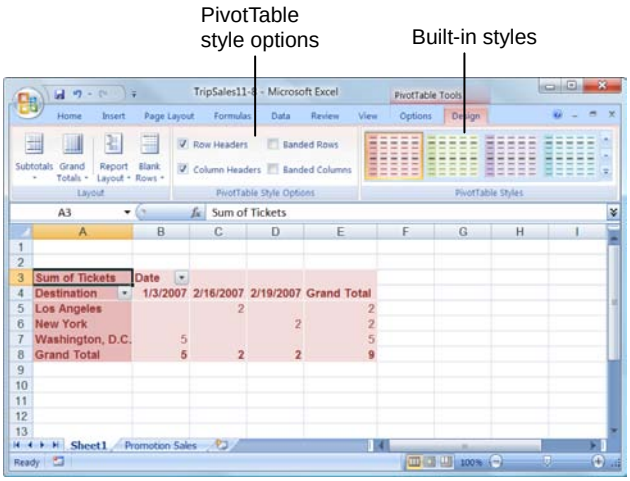


Figure 11-13: Selecting a built-in PivotTable style from the PivotTable Styles group.

	A	B	C	D	E
1					
2					
3	Sum of Tickets	Date			
4	Destination	1/3/2007	2/16/2007	2/19/2007	Grand Total
5	Los Angeles		2		2
6	New York			2	2
7	Washington, D.C.	5			5
8	Grand Total	5	2	2	9
9					
10					
11					

Figure 11-14: The PivotTable report with the updated style and style options.

Creating a PivotChart

A PivotChart is similar to an ordinary chart created in Excel, except that it plots a PivotTable's information. Like PivotTable reports, PivotCharts are dynamic, which means you can change a PivotChart's structure.

1. Select a cell in the PivotTable.

The PivotTable Tools are displayed on the Ribbon.

2. Under PivotTable Tools on the Ribbon, click the **Options** tab and click the **PivotChart** button in the Tools group.

The Insert Chart dialog box appears, displaying different types of charts.

3. Select the type of chart you want to use and click **OK**.

The chart appears in the worksheet with your PivotTable. The PivotChart Filter Pane is also displayed. You can use this pane to select what data you want displayed in the chart and how you want it sorted.

Tip: Click and drag the PivotChart's border to move the chart around in the worksheet.

4. Modify the chart using the PivotChart Filter Pane and the PivotTable tools.

Tips

- ✓ If you modify the PivotTable, the PivotChart will change also.
- ✓ More detailed information about modifying and formatting charts can be found in the "Creating and Working with Charts" chapter.

Exercise

- **Exercise File:** TripSales11-9 xlsx
- **Exercise:** Insert a Clustered Column PivotChart.

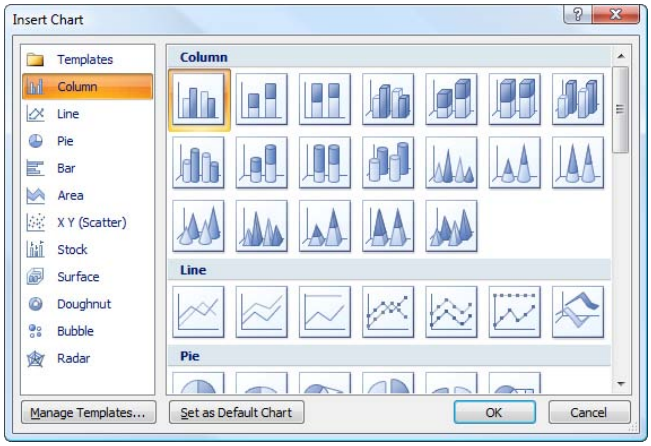
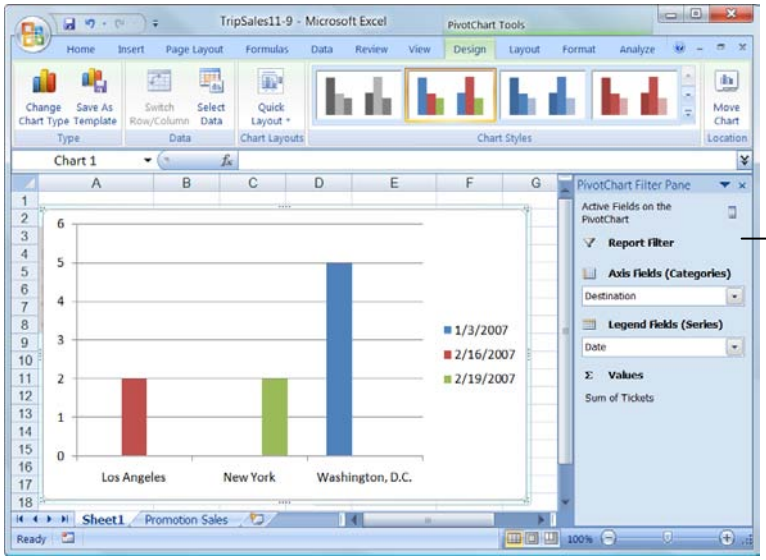


Figure 11-15: The Insert Chart dialog box.



Use the PivotChart Filter pane to change the information displayed in the chart.

12

Analyzing and Organizing Data

Creating Scenarios 173
Create scenarios 173
Display a scenario 174

Creating a Scenario Report 175
Create a Scenario Summary report 175

Working with Data Tables 176
Create a one-input data table 176
Create a two-input data table 177

Using Goal Seek 178

Using Solver 179
Install the Solver add-in 179
Use Solver 179

Using Data Validation 181
Set validation criteria 181
Create an input message 182

Using Text to Columns 183
Split data using a delimiter 183
Split data using a fixed column break 184

Removing Duplicates 185

Grouping and Outlining Data 186
Group rows or columns manually 186
Hide or show detail 186
Ungroup rows or columns 187
Outline data automatically 187
Remove an outline 187

Using Subtotals 188
Create subtotals 188
Remove subtotals 189

Consolidating Data by Position or Category 190
Consolidate by position or category 190

Consolidating Data Using Formulas 192

Most people don't realize that Excel has numerous tools for analysis and organization, so they perform Excel tasks the manual way.

This method can help you get by in simple situations, but isn't very effective when you need to perform more complex what-if analysis or organize large lists of data.

In this chapter, you will learn about Excel's tools for analyzing and organizing. These include tools for creating multiple worksheet scenarios, using Goal Seek and Solver tools to perform what-if analysis, and organizing your data by subtotaling, outlining, or consolidating.

Using Exercise Files

This chapter suggests exercises to practice the topic of each lesson. There are two ways you may follow along with the exercise files:

- Open the exercise file for a lesson, perform the lesson exercise, and close the exercise file.
- Open the exercise file for a lesson, perform the lesson exercise, and keep the file open to perform the remaining lesson exercises for the chapter. (This chapter does not use the same exercise file for the duration of the chapter.)

The exercises are written so that you may "build upon them", meaning the exercises in a chapter can be performed in succession from the first lesson to the last.

Creating Scenarios

If you've ever used a worksheet to answer the question "What if?" you've already performed what-if analysis. For example, what would happen if your advertising budget increased by 40%? How about 50%?

Excel has several tools for performing What-If Analysis, including Goal Seek, Data Tables, and Solver. In this lesson, you will learn how to create multiple what-if scenarios using Excel's Scenario Manager.

Create scenarios

A *scenario* is a set of input values that you can substitute in a worksheet to perform what-if analysis. For example, you could create scenarios to show various interest rates, loan amounts, and terms for a mortgage. Excel's scenario manager lets you create and store different scenarios in the same worksheet.

1. Create or open a worksheet that contains one or more formulas.

2. Click the **Data** tab on the Ribbon, click the **What-If Analysis** button in the Data Tools group, and select **Scenario Manager** from the list.

   The Scenario Manager dialog box appears with the message "No Scenarios defined. Choose Add to add scenarios." You want to add a new scenario.

3. Click the **Add** button.

   The Add Scenario dialog box appears.

4. Type a name for the scenario and press **<Tab>**.

   The cursor moves to the Changing cells box. Here you need to select the cells that contain the values you want to change.

   Tip: To select multiple nonadjacent cells, hold down the **<Ctrl>** key as you click them.

5. Select the cells in the worksheet that contain the values you want to change, then click **OK**.

   The Scenario Values dialog box appears. Here you need to enter desired values for the changing cells.

   Tip: To make sure you don't lose the original values for the changing cells, use the original cell values in the first scenario you create.

Exercise

- **Exercise File:** LoanPayment12-1 xlsx
- **Exercise:** Add a scenario called Original that uses the original values in cell range A4:C4.
  Next, add a scenario called 30 Year Loan and change the term of the loan to 30.
  Show the 30 Year Loan scenario in the worksheet.

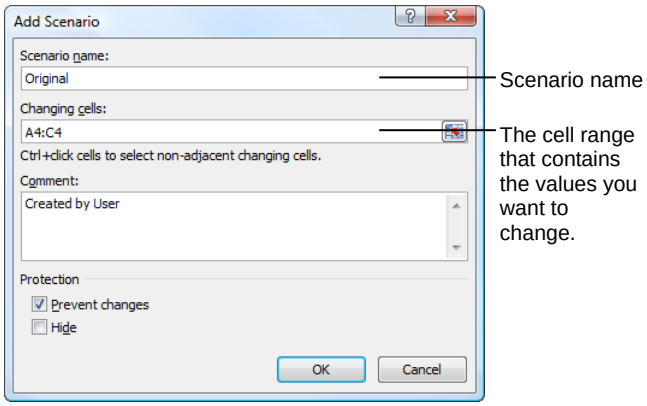


Figure 12-1: The Add Scenario dialog box.

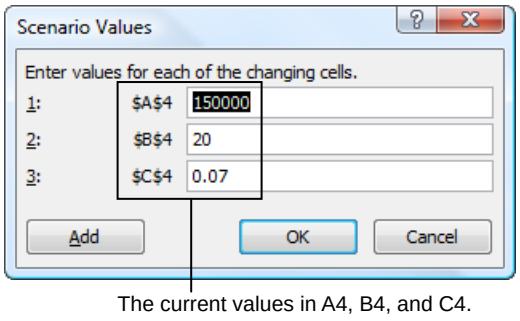


Figure 12-2: The Scenario Values dialog box.

6. Enter values in each of the boxes. Click **OK**, or click **Add** to add another scenario.

   The scenario is added. If you clicked OK, the scenario is listed in the Scenario Manager. If you clicked Add, the Add Scenario dialog box appears so you can add another scenario.

7. Repeat steps 4 – 6 to add a scenario. Click **OK**.

   The Scenario Manager dialog box lists each scenario that you created.

8. Click the **Close** button.

   The Scenario Manager closes.

Tips

✓ To edit a scenario, select the scenario in the Scenario Manager dialog box and click the **Edit** button.

Display a scenario

Once you have created scenarios in a worksheet, you can display the worksheet using the values from those scenarios.

1. Click the **Data** tab on the Ribbon, click the **What-If Analysis** button in the Data Tools group, and select **Scenario Manager** from the menu.

   The Scenario Manager dialog box appears.

2. Select the scenario that you want to display and click the **Show** button.

   The worksheet's values are changed to the values you specified in the scenario.

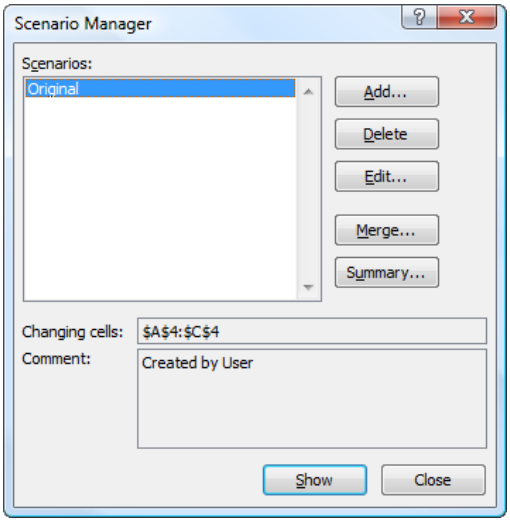


Figure 12-3: The Scenario Manager dialog box.

Creating a Scenario Report

A scenario summary report is a single compiled report that summarizes the results from several scenarios. It's easier to read than switching between different scenarios.

Create cell names

The first step in creating a scenario summary report is to create names for the cells that change.

1. Select the cells involved in the scenario and the labels you want to use to name them.

2. Click the **Formulas** tab on the Ribbon and click the **Create from Selection** button in the Defined Names group.

   The Create Names from Selection dialog box appears.

3. Select the option that describes where the labels are located in the selected cell range.

   The labels that are in the selected cell range will be used as names.

4. Click **OK**.

   The cells are named using the labels.

Create a Scenario Summary report

Once you've created at least two scenarios and have named cells, you can create a summary report.

1. Click the **Data** tab on the Ribbon, click the **What-If Analysis** button in the Data Tools group, and select **Scenario Manager** from the menu.

   The Scenario Manager dialog box appears.

2. Click the **Summary** button.

   The Scenario Summary dialog box appears.

3. Make sure the **Scenario summary** option is selected.

   Next you need to specify the result cells. These are the cells that are affected by the changing cells.

   Tip: Alternatively, select the "Scenario PivotTable report" option to create a report that gives you an instant what-if analysis of your scenarios.

4. Select the result cell range and click **OK**.

   A new Scenario Summary worksheet is added to the workbook that contains the summary report.

Exercise

- **Exercise File:** LoanPayment12-2 xlsx
- **Exercise:** Select the cell range A3:F4 and name the cells from the selection.
  Create a scenario summary report (the result cell range is D4:F4).

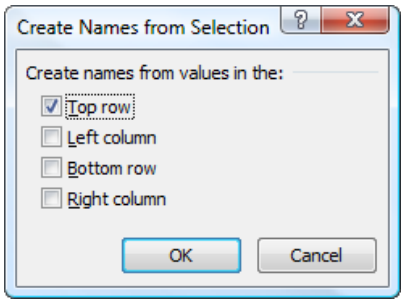
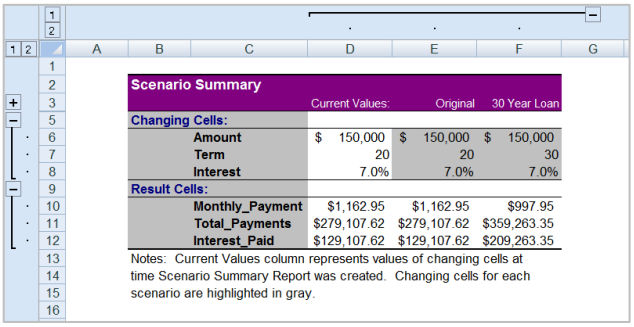


Figure 12-4: The Create Names from Selection dialog box.



Scenario Summary	Current Values:	Original	30 Year Loan
Changing Cells:			
Amount	$ 150,000	$ 150,000	$ 150,000
Term	20	20	30
Interest	7.0%	7.0%	7.0%
Result Cells:			
Monthly_Payment	$1,162.95	$1,162.95	$997.95
Total_Payments	$279,107.62	$279,107.62	$359,263.35
Interest_Paid	$129,107.62	$129,107.62	$209,263.35

Notes: Current Values column represents values of changing cells at time Scenario Summary Report was created. Changing cells for each scenario are highlighted in gray.

Figure 12-5: A Scenario Summary report.

Working with Data Tables

Another way to get answers to your what-if questions is by using a data table. A data table is a cell range that displays the results of a formula using different values.

For example, you could create a data table to calculate loan payments for several interest rates and term lengths.

There are two types of data tables:

- **One-input Data Table:** Displays the results of a formula for multiple values of a single input cell. For example, if you have a formula that calculates a loan payment you could create a one-input data table that shows payment amounts for different interest rates.
- **Two-input Data Table:** Displays the results of a formula for multiple values of two input cells. For example, if you have a formula that calculates a loan payment you could create a two-input data table that shows payment amounts for different interest rates and different term lengths.

Create a one-input data table

1. Set up the table area. Make sure you include the formula in the top row and the input values in the left column.

   Make sure the formula refers to the input cell.

2. Select the table range that contains the formula and substitution values.

   This should include blank cells below the formula and to the right of the values—this is where the data table will go.

3. Click the **Data** tab on the Ribbon, click the **What-If Analysis** button in the Data Tools group, and select **Data Table**.

   The Data Table dialog box appears.

4. Type the cell reference for the input cell in the Column input cell box and click **OK**.

   Tip: If you set up your table with the data in a row instead of a column, you would enter the cell reference for the input cell in the Row input cell box instead.

   Excel displays the results of the formula using each of the substituted values.

Exercise

- **Exercise File:** LoanPayment12-3 xlsx
- **Exercise: Create a one-input data table:** Enter =PMT(C4/12,B4*12,A4) in cell B7. Enter 6.0, 6.5, 7.0, 7.5, 8.0 in cells A8:A12. Select the cell range A7:B12 and create a data table. In the Data Table dialog box, enter C4 in the Column input cell box. Select B8:B12 and press <Delete>. **Create a two-input data table:** Move the formula in cell B7 to cell A7. Enter 5, 10, 15, 20 in cells B7:E7. Select the cell range A7:E12. Create a data table and enter B4 as the row input cell and C4 as the column input cell. Delete the data table you just created.

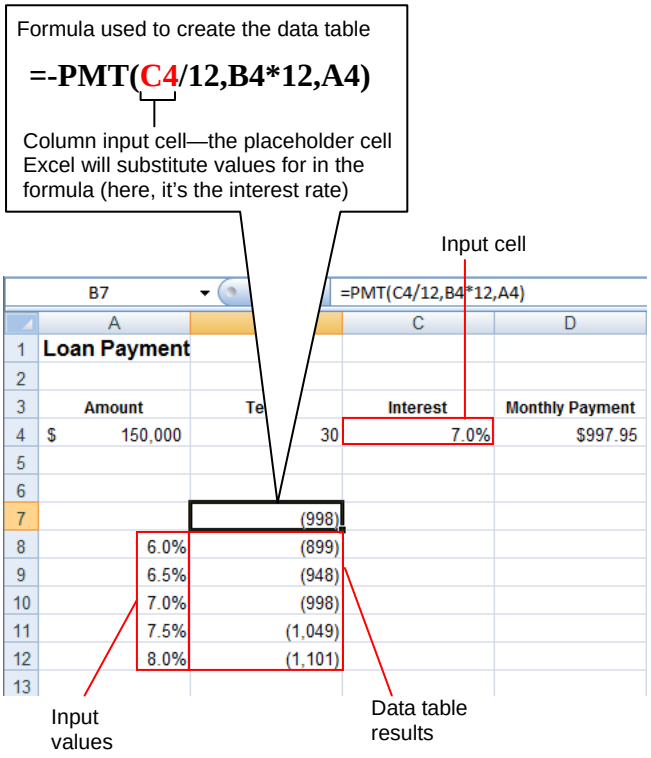


Figure 12-6: The Data Table dialog box and the resulting one-input data table showing different monthly payments at different interest rates.

Create a two-input data table

1. Set up the table area. Make sure you include the formula in the upper-left cell and the values for the first input cell in the left column and the values for the second input cell in the top row.

   Make sure the formula refers to the two input cells.

2. Select the table range that contains the formula and substitution values (both the row and column values).

   This should include blank cells below the formula and to the right of the values—this is where the data table will go.

3. Click the **Data** tab on the Ribbon, click the **What-If Analysis** button in the Data Tools group, and select **Data Table**.

   The Data Table dialog box appears. Since this is a two-input table, two input cells need to be entered.

4. Enter the cells you want to use for the Row input cell and the Column input cell and click **OK**.

   Excel displays the results of the formula with all the substituted values.

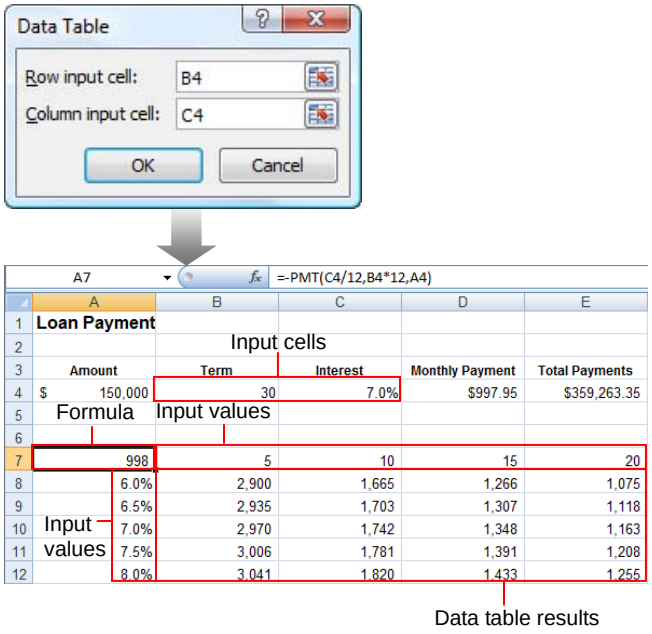


Figure 12-7: The Data Table dialog box and the resulting two-input data table showing different monthly payments at different interest rates and different terms.

Using Goal Seek

When you know the desired result of a single formula, but not the value the formula needs for the result, you can use the Goal Seek feature. For example, you can afford a $1,200 monthly payment, so how much of a loan can you take out? When goal seeking, Excel plugs different values into a cell until it finds one that works.

1. Open or create a workbook that contains the formulas you want to work with.

2. Click the **Data** tab on the Ribbon, click the **What-If Analysis** button in the Data Tools group, and select **Goal Seek**.

   The Goal Seek dialog box appears.

3. Click the **Set cell** box, and click the cell in the worksheet that contains the formula you want to use.

4. Click the **To value** box and enter the value you want to change it to.

5. Click the **By changing** cell box, and click the cell you want to change to achieve the formula result.

   This cell must be a cell that is referenced by the formula.

6. Click **OK**.

   Excel calculates and displays the value needed to achieve the formula result you desire.

7. Click **OK** to replace the original values or click **Cancel** to keep the original values.

Exercise

- **Exercise File:** LoanPayment12-4 xlsx
- **Exercise:** Use Goal Seek to determine the maximum loan amount you could afford with a $1200 monthly payment.

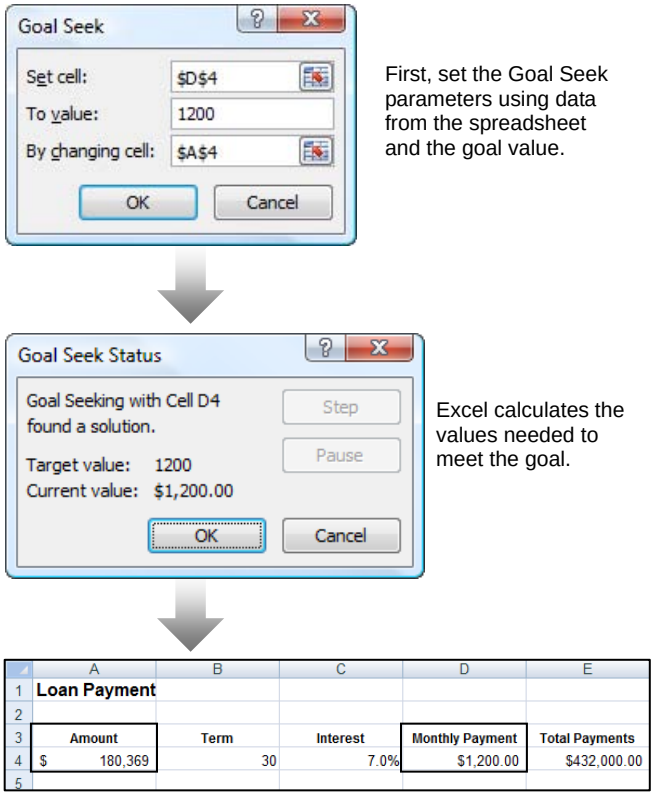


Figure 12-8: Using Goal Seek to determine the maximum loan amount with a $1200 monthly payment.

Using Solver

Goal Seek works great for problems that have a single variable and an exact target value, but not for complex problems that have several variables and/or a range of values. For these, you need to use Excel's Solver command. Solver is a tool that can perform advanced what-if analysis on problems with many variable cells. You can also specify constraints, or conditions that must be met to solve the problem.

Install the Solver add-in

Solver is an optional Excel add-in. You need to install it before you can use it.

1. Click the **Office Button** and click the **Excel Options** button.

   The Excel Options dialog box appears.

2. Click the **Add-Ins** tab.

   By default, Excel Add-ins are usually displayed.

3. If necessary, click the **Manage** list arrow and select **Excel Add-ins**.

4. Click the **Go** button.

   The Add-Ins dialog box appears, displaying a list of the add-ins available for Excel.

5. Click the **Solver Add-in** check box to select it and click **OK**.

   A dialog box appears, asking to confirm that you want to install the add-in.

6. Click **Yes**.

   Microsoft Office reconfigures so that Solver is installed in Excel. The Solver command will now be available in the Analysis group on the Data tab on the Ribbon.

   Tip: You may need to restart Excel so that Solver installs properly.

Use Solver

1. Open or create a workbook that contains the problem you want to solve.

   A problem should consist of a formula that you want Excel to solve by changing the values of its inputs until it arrives at the desired result.

Exercise

- **Exercise File:** Mailings12-5 xlsx
- **Exercise:** Imagine you're in charge of a mailing campaign for five states. You have been given the following budget constraints: your total budget is $35,000, you must spend at least 50% of the budget on Minnesota mailings, and at least three mailings must go out in each state.
  Based on this information, and the fact that the number of mailings must be a whole number, use Solver to calculate the maximum number of mailings you can send out to each state.

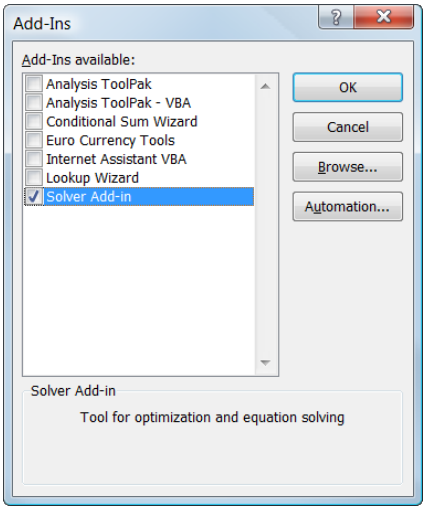


Figure 12-9: The Add-Ins dialog box.

2. Click the **Data** tab on the Ribbon and click the **Solver** button in the Analysis group.

   The Solver Parameters dialog box appears. First you need to tell Excel the target cell. This is the cell that contains the formula you want to solve.

3. Select the target cell in the worksheet.

   The cell reference for the target cell appears in the Set Target Cell box.

4. Select an **Equal To** option. If you select the **Value of** option, enter a value.

   Choose from Max, Min, or Equal, depending on what value you want Solver to calculate. For example, if you select Max, Solver will change the specified cells to make the target cell as large as possible.

   Next, you need to specify the cells that Solver can change to meet your target cell goal.

5. Click the **Collapse Dialog** button in the By Changing Cells box and select the cells that need to change to reach your goal.

   Tip: Press and hold the **<Ctrl>** key to select multiple nonadjacent cells.

   Finally, add any constraints on the problem. For example, you could specify that one of the formula's input cells can't be greater than a certain value.

6. Click the **Add** button in the Subject to the Constraints section.

   The Add Constraint dialog box appears.

7. Enter a cell reference, click the list arrow and select an operator, then enter the constraint value you want to apply to the cell.

8. Click **Add** to repeat the process and add another constraint, or **OK** to continue.

   You return to the Solver Parameters dialog box.

9. Click the **Solve** button.

   The Solver Results dialog box appears, letting you know whether or not Solver found a solution.

10. Select **Keep Solver Solution** or **Restore Original Values** and click **OK**.

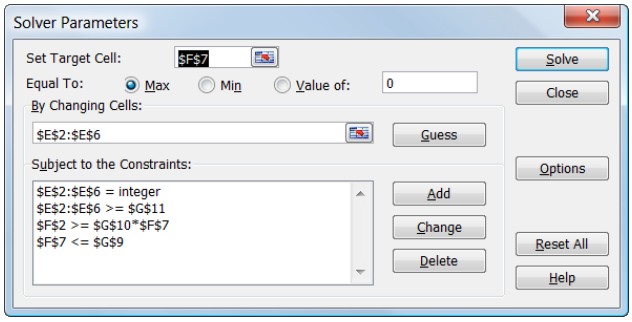


Figure 12-10: The Solver Parameters dialog box.

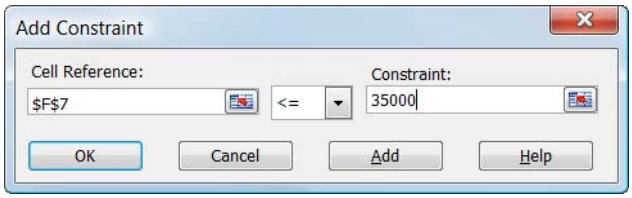


Figure 12-11: The Add Constraint dialog box.

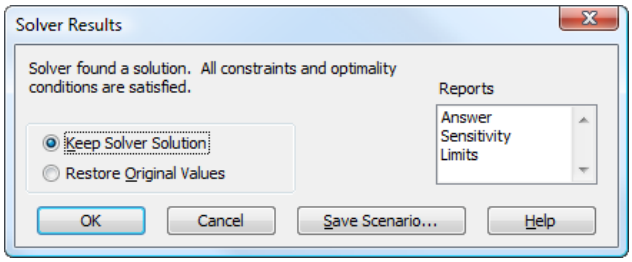


Figure 12-12: The Solver Results dialog box.

	A	B	C	D	E	F	G
1		Clients	Cost Per Flyer	Cost Per Mailing	Number of Mailings	Total Cost	Percent of Total
2	Minnesota	3500	0.65	3,430	5	17,150	50%
3	Wisconsin	3200	0.5	2,656	3	7,968	23%
4	Illinois	850	0.75	918	4	3,672	11%
5	Washington	950	0.8	1,074	4	4,294	13%
6	Texas	300	0.45	234	4	936	3%
7					Total Cost	34,020	
8							
9		**Budgeting Constraints**				Total Budget:	35,000
10						Minimum Minnesota %:	50%
11						Min Mailings:	3

Figure 12-13: The solution calculated by Solver.

Using Data Validation

You can help users enter accurate and appropriate information into your worksheets with Excel's Data Validation feature. Data validation restricts the type of information that can be entered into a cell and can provide the user with instructions on entering information in a cell.

Set validation criteria

To use data validation, you first need to specify the validation criteria you want to use.

1. Select the cells you want to validate.

   You will usually want to select a column of data, although you can select a single cell as well.

2. Click the **Data** tab on the Ribbon and click the **Data Validation** button in the Data Tools group.

   The Data Validation dialog box appears, displaying the Settings tab.

3. Click the **Allow** list arrow and select the criteria option you want to use.

   Table 12-1: Validation Criteria Options describes your choices.

   Depending on your criteria selection, you will next need to select a Data option, and/or select additional options in the dialog box. You may also need to enter values.

4. Complete the remaining fields on the Settings tab and click **OK**.

   The data validation is set for the selected cell(s). Now when a user tries to enter data that is not valid, Excel will prevent the entry and display a message about the cell being restricted.

Tips

- ✓ By default, when you enter invalid data in a validated cell, a warning message appears and entry of the invalid data is not allowed. However, you can modify the message that appears, and even allow invalid data to be entered into a validated cell. To do this, click the **Error Alert** tab in the Data Validation dialog box and select the desired options.
- ✓ To find validated data in a worksheet, click the **Find & Select** button in the Editing group on the Home tab and select **Data Validation**. The validated cells are highlighted.

Exercise

- **Exercise File:** MonthlySales12-6 xlsx
- **Exercise:** Select column D, open the Data Validation dialog box, select List in the Allow box and type "Senior Manager, Manager, Associate" in the Source box. Click the cell D5 list arrow and select Associate.
  Then set up column C with validation that sets the text length of the entries equal to 2. Create an input message for column C cells that displays: "Enter the state code."
  To test it, enter "Minnesota" in cell C2 and press <Enter>. Click Retry and enter "MN".

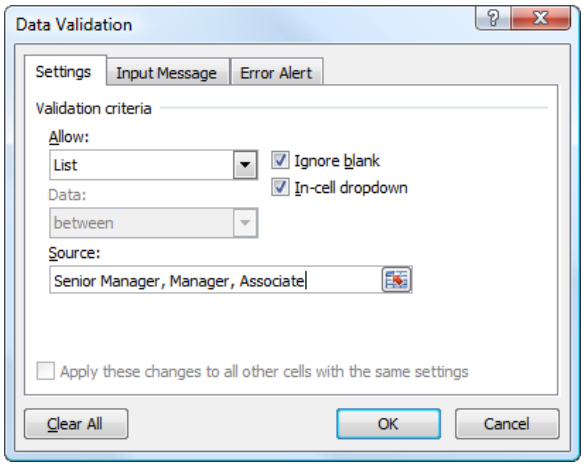


Figure 12-14: Creating a list in the Data Validation dialog box.

Table 12-1: Validation Criteria Options

Any value	No validation criteria applied. Any value can be entered.
Whole number	Allows a whole number between minimum and maximum limits you set.
Decimal	Allows a decimal or a percent entered as a decimal between limits you set.
List	Allows a value from a list of choices you input or select from a range. A list arrow then appears in the cell, allowing the user to make a choice from the list.
Date	Allows a date within prescribed limits.
Time	Allows a time within prescribed limits.
Text length	Allows text containing a certain number of characters that you prescribe.
Custom	Allows you to enter a formula to calculate what is allowed in the cell.

✓ To remove validation criteria, select the cells that contain the validation you want to remove, and click the **Data Validation** button in the Data Tools group on the Data tab. Click **Clear All**, then click **OK**.

Create an input message

You can set up Excel to display a message whenever a cell or range of cells is selected. These messages are useful for providing data entry instructions.

1. Select the cells where you want an input message to appear.

   The input message will appear when the cell or cells are selected.

2. Click the **Data** tab on the Ribbon and click the **Data Validation** button in the Data Tools group.

   The Data Validation dialog box appears.

3. Click the **Input Message** tab.

   Tip: Make sure the "Show input message when cell is selected" box is selected—it should be selected by default.

4. Click in the **Title** box and type a title for the message.

   The title will be displayed along with the message when you select the cell(s).

5. Click in the **Input message** box and type a data input message.

   For example, you could enter instructions such as "Enter State name as a two-letter abbreviation".

6. Click **OK**.

   Now when you select the cell(s), you will see the title and message displayed.

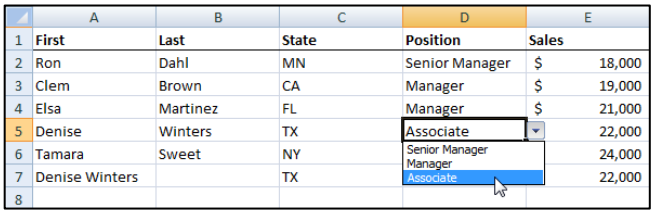

A B C D E
1 First Last State Position Sales
2 Ron Dahl MN Senior Manager $ 18,000
3 Clem Brown CA Manager $ 19,000
4 Elsa Martinez FL Manager $ 21,000
5 Denise Winters TX Associate 22,000
6 Tamara Sweet NY 24,000
7 Denise Winters TX 22,000
8
Senior Manager
Manager
Associate

Figure 12-15: Selecting data from a data validation list.

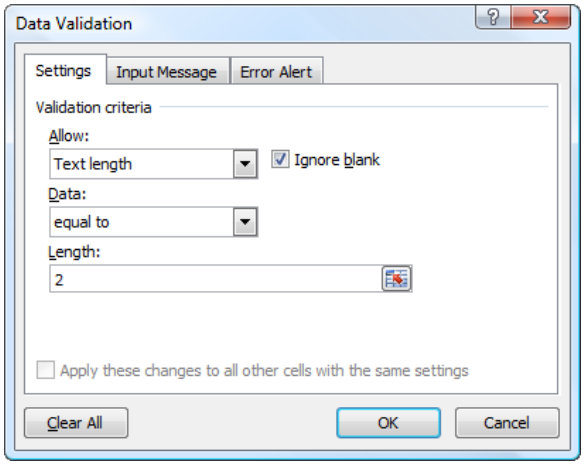


Figure 12-16: Defining text length in the Data Validation dialog box.

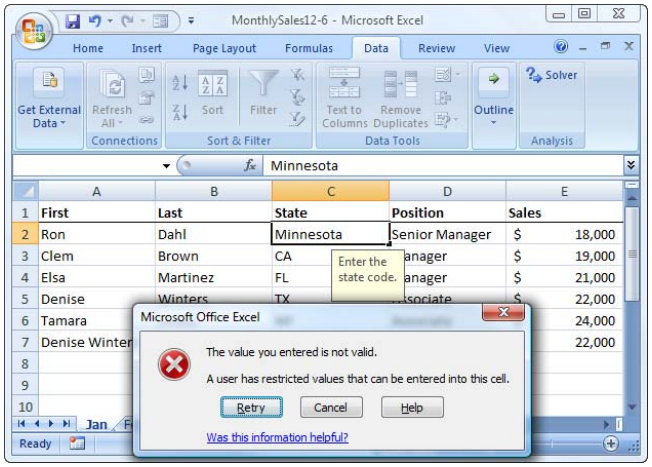


Figure 12-17: An error message appears when you try to enter data that does not match a data validation rule.

Using Text to Columns

The Convert Text to Columns feature in Excel allows you to split the contents of a cell into different columns. For example, you could split a person's first and last name into separate columns.

You can split data into columns using two different methods:

- **Delimited:** The data will be separated based on the location of commas or tabs within the data.
- **Fixed Width:** You specify a fixed column break location.

Let's take a look at both methods.

Tips

✓ Before using the text to columns feature, make sure there are enough blank columns next to your data so that the split data will have somewhere to go without copying over the rest of your data.

Split data using a delimiter

If the data has delimiters such as commas or tabs, you can use them to split the data.

1. Select the cell range you want to convert.
2. Click the **Data** tab on the Ribbon and click the **Text to Columns** button in the Data Tools group.

   The Convert Text to Columns Wizard dialog box appears.
3. Select the **Delimited** option and click **Next**.

   Here you need to select the types of delimiters you want to use to separate your data. Tabs, semicolons, commas, and spaces are all common delimiters.

   Your selection will depend on the types of delimiters you have present in your data. For example, if you want to split first and last names using the space between the names, you'd select the Space option.
4. Click the check box next to each delimiter you want to select in the Delimiters area.

   A preview appears, showing you how the data will be split into different columns based on your selection.
5. Click **Next**.

   Next you can select a format for each column of data.

Exercise

- **Exercise File:** MonthlySales12-7 xlsx
- **Exercise:** Select cell A7 and split Denise Winters' first and last names into two cells using the space between the words as the delimiter.

	A	B
1	**First**	**Last**
2	Ron	Dahl
3	Clem	Brown
4	Elsa	Martinez
5	Denise	Winters
6	Tamara	Sweet
7	Denise Winters	

Figure 12-18: Before splitting text.

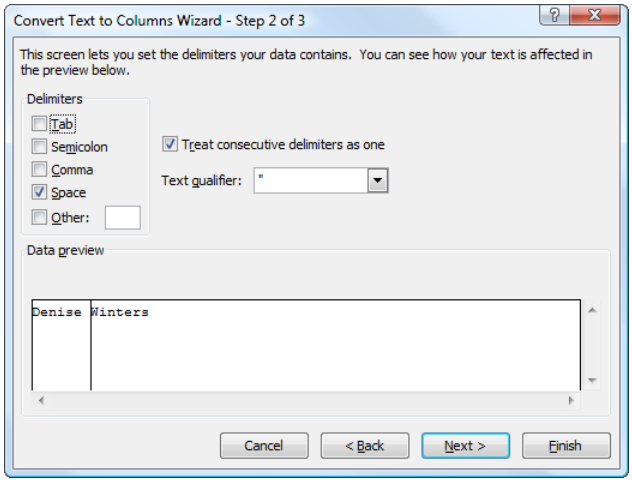


Figure 12-19: Step 2 of the Convert Text to Columns Wizard dialog box.

	A	B
1	**First**	**Last**
2	Ron	Dahl
3	Clem	Brown
4	Elsa	Martinez
5	Denise	Winters
6	Tamara	Sweet
7	Denise	Winters

Figure 12-20: After splitting text.

6. Select a column in the Data preview area and then select a format option for that column in the Column data format area. Repeat for additional columns.

   Tip: If you don't want the new columns to replace the original data, click the **Destination** Collapse Dialog button and select the range where you want to put the split data.

7. Click **Finish**.

   Tip: A message may appear, asking if you want to replace the contents of the destination cells. If so, click **OK**.

   The data is split into different columns.

Split data using a fixed column break

You can also decide for yourself where you want to split the data using a fixed column break.

1. Select the cell range you want to convert.

2. Click the **Data** tab on the Ribbon and click the **Text to Columns** button in the Data Tools group.

   The Convert Text to Columns Wizard dialog box appears.

3. Select the **Fixed width** option and click **Next**.

   Here you can manually add break lines to separate your data into different columns.

4. Click in the Data preview area where you want to place a break line.

   A line appears, showing you where the data will be separated.

5. Add additional break lines as desired, then click **Next**.

   Next you can select a format for each column of data.

6. Select a column in the Data preview area and then select a format option for that column in the Column data format area. Repeat for additional columns.

7. Click **Finish**.

   Tip: A message may appear, asking if you want to replace the contents of the destination cells. If so, click **OK**.

   The data is split into different columns.

Removing Duplicates

You can easily clean up your Excel data and remove duplicate rows of data.

1. Select the range of cells you want to check for duplicates.

   Be sure to select all the columns you want Excel to check.

2. Click the **Data** tab on the Ribbon and click the **Remove Duplicates** button in the Data Tools group.

   The Remove Duplicates dialog box appears. Here you have another chance to select or deselect the columns you want to check.

3. Click **OK**.

   If Excel finds duplicate items, they are removed and a message appears telling you what was removed. If no duplicates are found, you see a message to that effect instead.

4. Click **OK**.

   The message disappears.

Exercise

- **Exercise File:** MonthlySales12-8 xlsx
- **Exercise:** Select the cell range A2:G7 and check it for duplicates. Remove any duplicates.

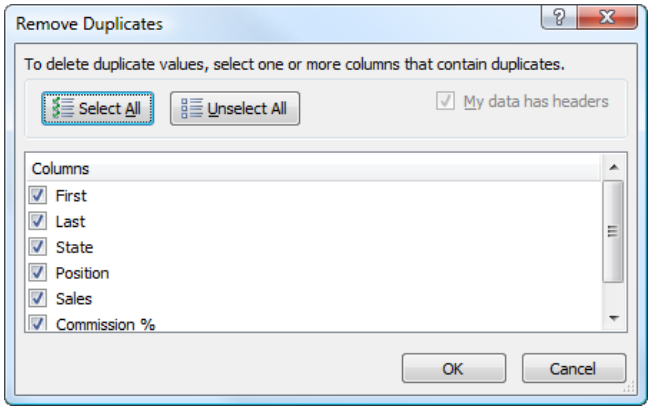


Figure 12-21: The Remove Duplicates dialog box.

Grouping and Outlining Data

Many spreadsheets are created in a hierarchical style. For example, a worksheet might contain a column for each month, followed by a total column. By outlining your worksheets, you make them easier to understand and read. Instead of sifting through irrelevant information, you can collapse an outline to display each group's bottom line. There are several ways to outline a workbook:

- **Using the Auto Outline Feature:** The Auto Outline command automatically outlines a selected range of cells or the entire worksheet, based on formulas and the direction of references.
- **Grouping Data:** You can group rows and columns manually by selecting them.
- **Using the Subtotals Feature:** The Subtotals command calculates subtotal values for the labeled columns you select. Excel automatically inserts and labels the total rows and outlines the list.
- **Using the Consolidate Feature:** You can consolidate several sheets using the Consolidate feature.

This lesson explains how to use the Auto Outline feature and how to group data manually.

Exercise

- **Exercise File:** MonthlySales12-9 xlsx
- **Exercise:** Manually group rows 3 through 6 and practice hiding and displaying details.
  Then remove the grouping.
  Use the Auto Outline feature (Excel should outline columns E to G). Clear the outline.

Group rows or columns manually

1. Select the column or row data you want to group.
2. Click the **Data** tab on the Ribbon and click the **Group** button in the Outline group.

   The Group dialog box appears. Here you need to select whether you want to group rows or columns.
3. Select the **Rows** or **Columns** option and click **OK**.

   The selected rows or columns are grouped together.

Hide or show detail

Once you've grouped or outlined data, you can collapse or expand the group detail.

1. Click the **Data** tab on the Ribbon and click the **Hide Detail** or **Show Detail** button in the Outline group.

   Other Ways to Hide or Show Detail:
   Click the outline symbols next to or above the worksheet. These include the **Row Level** and **Column Level** buttons and the **plus** and **minus** button.

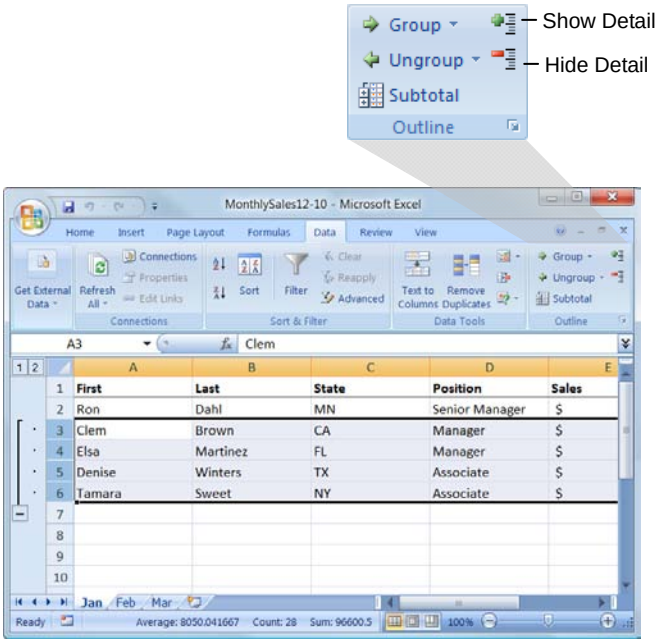


Figure 12-22: An example of grouped rows.

Ungroup rows or columns

1. Select the grouped row or column data.

2. Click the **Data** tab on the Ribbon and click the **Ungroup** button in the Outline group.

Outline data automatically

If your data contains detailed rows or columns that are summed or subtotaled, Excel can automatically group the data into outline form.

Tips

✓ Excel will only outline numerical data that is related by a sum or subtotal formula. It cannot outline text data or numerical data that is not totaled by a formula.

1. Make sure your data has column labels and contains formulas that summarize the data.

   The sum and subtotal functions are commonly used to summarize rows or columns.

   Tip: Summary rows and columns should be below and to the right of the data, respectively. If they are above or to the left, click the **Outline** Dialog Box Launcher in the Outline group. Remove the checkmark from the **Summary rows below detail** or **Summary columns to right of detail** check box.

2. Select a cell in the data range you want to outline.

3. Click the **Data** tab on the Ribbon, click the **Group** button list arrow in the Outline group, and select **Auto Outline**.

   The data is automatically outlined so that you can collapse the detailed rows or columns and view only the totals or subtotals.

Remove an outline

1. Click the **Data** tab on the Ribbon, click the **Ungroup** button list arrow in the Outline group, and select **Clear Outline**.

   The outline is cleared from the worksheet.

Columns E:G are grouped because they contain related data. Column G is a summary column of data contained in columns E and F.

	D	E	F	G	H	I
1	**Position**	**Sales**	**Commission %**	**Commission**		
2	Senior Manager	$ 18,000	5%	$ 900		
3	Manager	$ 19,000	15%	$ 2,850		
4	Manager	$ 21,000	15%	$ 3,150		
5	Associate	$ 22,000	10%	$ 2,200		
6	Associate	$ 24,000	10%	$ 2,400		
7						
8						

Figure 12-23: An example of spreadsheet after using the Auto Outline command.

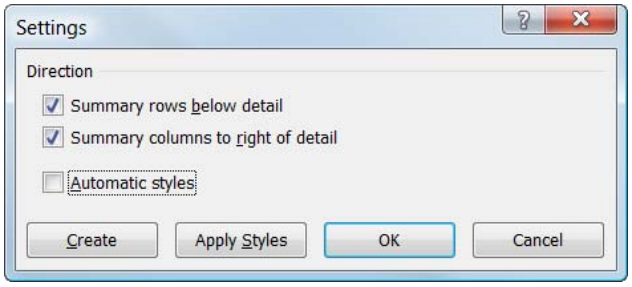


Figure 12-24: The Settings dialog box.

Using Subtotals

A quick and easy way to group and summarize data is to use Excel's Subtotals feature. Usually you create subtotals with the SUM function, but you can also create subtotals using functions such as COUNT, AVERAGE, MAX, and MIN. The Subtotals feature also outlines the data, allowing you to display and hide the detail rows for each subtotal.

Create subtotals

1. Make sure your data is arranged into labeled columns, that the data in each column is of the same type, and that you've sorted the data based on the column you want to group the subtotals by.

   Now you're ready to subtotal your data.

   Tip: Excel's Subtotals feature subtotals your data by automatically inserting the SUBTOTAL function.

2. Select a cell in the data range.

3. Click the **Data** tab on the Ribbon and click the **Subtotal** button in the Outline group.

   The Subtotal dialog box appears.

4. Click the **At each change in** list arrow and select the column you want to subtotal.

   This command specifies what it is that you want to subtotal. For example, if you have a list of customers, the products they bought, and the amounts of the sales, and you want to subtotal the list by the type of product, you would select the column that contains the products.

5. Click the **Use function** list arrow and select the function you want to use to calculate the subtotals.

   For example, you could select Sum, Count, Average, or Max.

6. In the "Add subtotal to" box, click the check box next to each column that has values you want to subtotal.

7. Click **OK**.

   The data is organized with subtotals.

Tips

- ✓ To hide or show subtotals detail, click the **Hide Detail** and **Show Detail** buttons in the Outline group on the Ribbon or use the outline symbols next to the worksheet to hide or display individual subtotals.

Exercise

- **Exercise File:** MonthlySales12-10 xlsx
- **Exercise:** Subtotal the data at each change in Position using the SUM function and subtotal the Sales and Commission columns.
  Click the 2 Column Level Symbol button to hide details, then click the 3 Column Level Symbol button to display them again.
  Remove the subtotals.

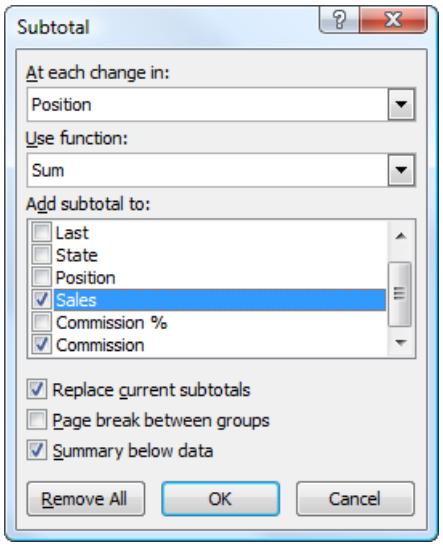


Figure 12-25: The Subtotal dialog box.

✓ To add more subtotals, repeat the steps but uncheck the **Replace current subtotals** check box so you don't overwrite the existing subtotals.

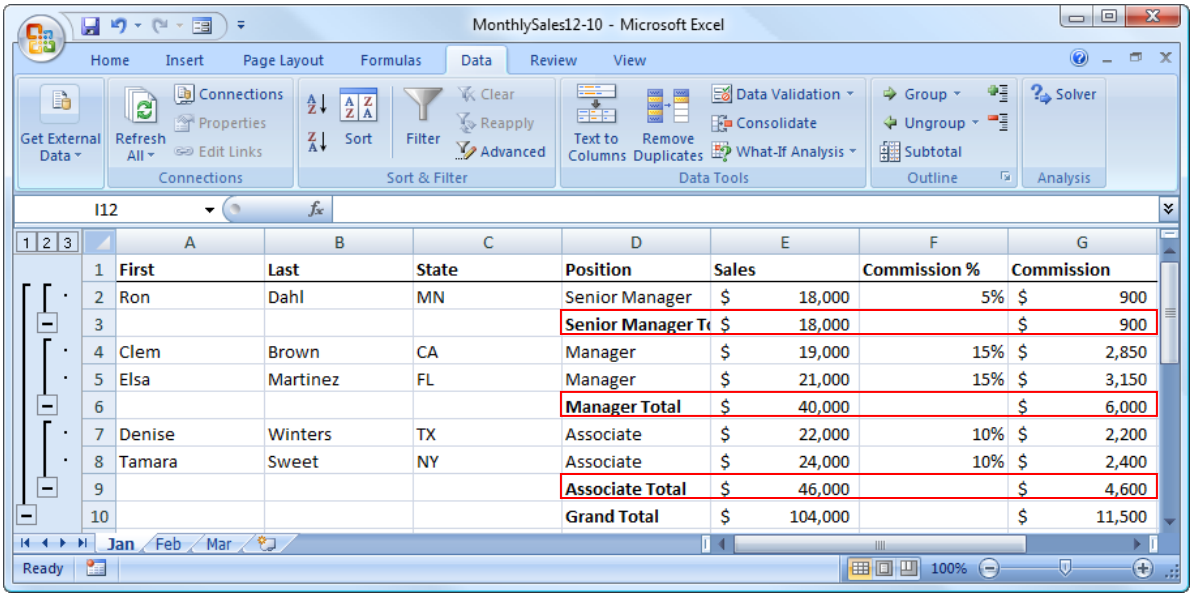
Remove subtotals

1. Click the **Data** tab on the Ribbon and click the **Subtotal** button in the Outline group.

   The Subtotal dialog box appears.

2. Click the **Remove All** button.

   The subtotals are removed.



	A	B	C	D	E	F	G
1	First	Last	State	Position	Sales	Commission %	Commission
2	Ron	Dahl	MN	Senior Manager	$ 18,000	5%	$ 900
3				Senior Manager Tc	$ 18,000		$ 900
4	Clem	Brown	CA	Manager	$ 19,000	15%	$ 2,850
5	Elsa	Martinez	FL	Manager	$ 21,000	15%	$ 3,150
6				Manager Total	$ 40,000		$ 6,000
7	Denise	Winters	TX	Associate	$ 22,000	10%	$ 2,200
8	Tamara	Sweet	NY	Associate	$ 24,000	10%	$ 2,400
9				Associate Total	$ 46,000		$ 4,600
10				Grand Total	$ 104,000		$ 11,500

Figure 12-26: Subtotals of sales and commissions calculated at each change in position. In other words, the subtotal of each position appears in the list, with the grand total appearing at the bottom.

Consolidating Data by Position or Category

Excel can automatically summarize or consolidate information from multiple worksheets into a single master worksheet using the Consolidate feature. For example, if you have sales data from three different offices on three different worksheets, Excel can total them for you on another worksheet.

Excel can consolidate information in three different ways: by position, by category, or by using formulas. This lesson describes the first two ways:

- **Consolidate by position:** Used when data in all the worksheets is arranged in exactly the same order and location.
- **Consolidate by category:** Used when the worksheets have the same row and column labels, but the rows and columns aren't arranged in the same order on all the worksheets. Excel uses the labels to match the data.

Tips

✓ Make sure the label spelling and capitalization are identical on each of the worksheets you want to consolidate by category.

Consolidate by position or category

Before you begin consolidating by position or category, make sure the data is arranged in labeled rows and columns without blank rows or columns. Each of the ranges you want to consolidate needs to be on a separate worksheet, with a blank worksheet for the consolidation's destination.

When consolidating, you don't actually specify whether you are consolidating by position or category—Excel knows how to consolidate based on the data range you select and whether or not the consolidating worksheets are arranged identically.

1. On the worksheet where you want to put the consolidated data, click the upper-left cell in the area where you want to put the consolidated data.

2. Click the **Data** tab on the Ribbon and click the **Consolidate** button in the Data Tools group.

   The Consolidate dialog box appears.

3. Click the **Function** list arrow and select the function you want to use to consolidate the data.

   Consolidation functions include Sum, Count or Average.

Exercise

- **Exercise File:** MonthlySales12-11.xlsx
- **Exercise:** Add a new worksheet to the workbook. Consolidate the data in E1:E6 (the Sales totals) from worksheets Jan, Feb, and Mar into the new worksheet. Copy the Sales label to the consolidated worksheet.

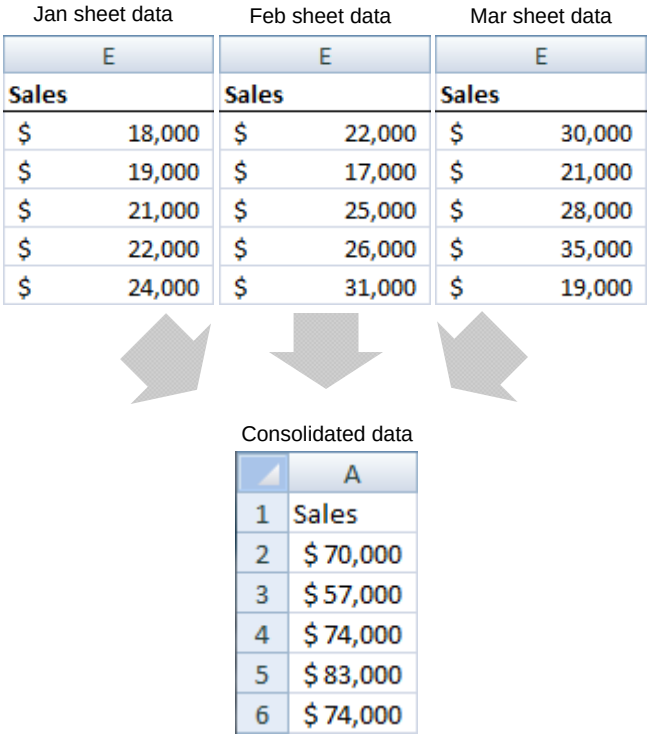


Figure 12-27: Consolidating sales data from three different worksheets.

4. Click the first worksheet tab you want to consolidate, and select the range you want to consolidate.

   Tip: If source data is in a different workbook, click **Browse** to locate the file and click **OK**.

5. Click the **Add** button.

6. Repeat steps 4 and 5 to select the ranges on any other worksheets.

   Tip: If you're consolidating from multiple workbooks and you want the consolidation to update automatically whenever the source data changes, click the **Create links to source data** check box to select it.

7. To copy labels to the consolidated worksheet, click the **Top row** and **Left column** options.

   This tells Excel where the labels are located in the source ranges.

8. Once you're ready to consolidate, click **OK**.

   The values from the selected ranges are combined on the consolidation worksheet using the function you selected.

Tips

- ✓ If you choose to copy labels onto the consolidation worksheet, any labels that don't appear in all of the source ranges will appear in separate rows or columns on the consolidation worksheet, along with their corresponding data cells.

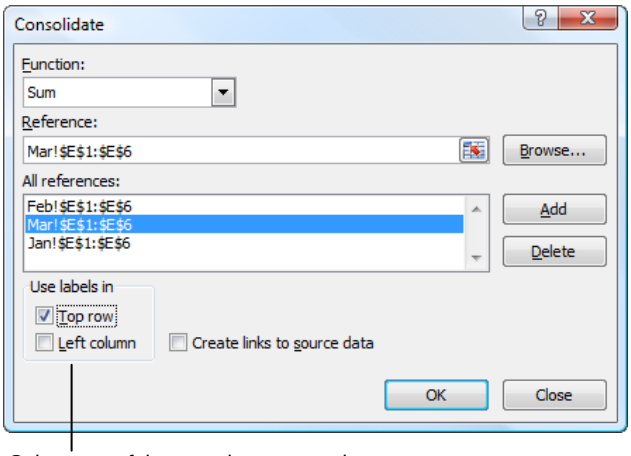


Figure 12-28: The Consolidate dialog box.

Consolidating Data Using Formulas

Consolidating with formulas is the most versatile and powerful way to consolidate data from multiple worksheets into a single worksheet because there is no prescribed format for the data that is consolidated.

The cells you reference don't need to be in the same position on each sheet, or even have the same labels, to be consolidated using this method.

1. Copy any column or row labels you want to use from the source worksheets to the consolidation worksheet, then paste the labels where you want to see consolidated data.

2. Enter a formula that references the source cells in each worksheet that you want to consolidate.

   For example, you could combine three different cells on three different worksheets by typing =SUM(Sheet2!A6,Sheet3!B7,Sheet4!D2). Or, to reference the same cell on different worksheets, you could enter =SUM(Sheet2:Sheet4!A6).

Tips

- ✓ Instead of typing each cell reference, you can type the first part of the formula, for example =SUM(, and then click the cells you want to include.
- ✓ Enter a comma between cell selections from different worksheets.
- ✓ The consolidation will automatically update when the source cell ranges are changed.

Exercise

- **Exercise File:** MonthlySales12-12 xlsx
- **Exercise:** Find the total commissions paid to managers in the first quarter of the year. Copy the Commission label from the Jan worksheet to cell C1 of the Sheet2 worksheet.

  In cell C2 on Sheet2, enter =SUM(
  Then select cells G3:G4 on the Jan sheet, type a comma, select G3:G4 on the Feb tab, type a comma, and select G3:G4 on the Mar tab. Press Enter.
  The total 19,650 appears in cell C2 on Sheet2.

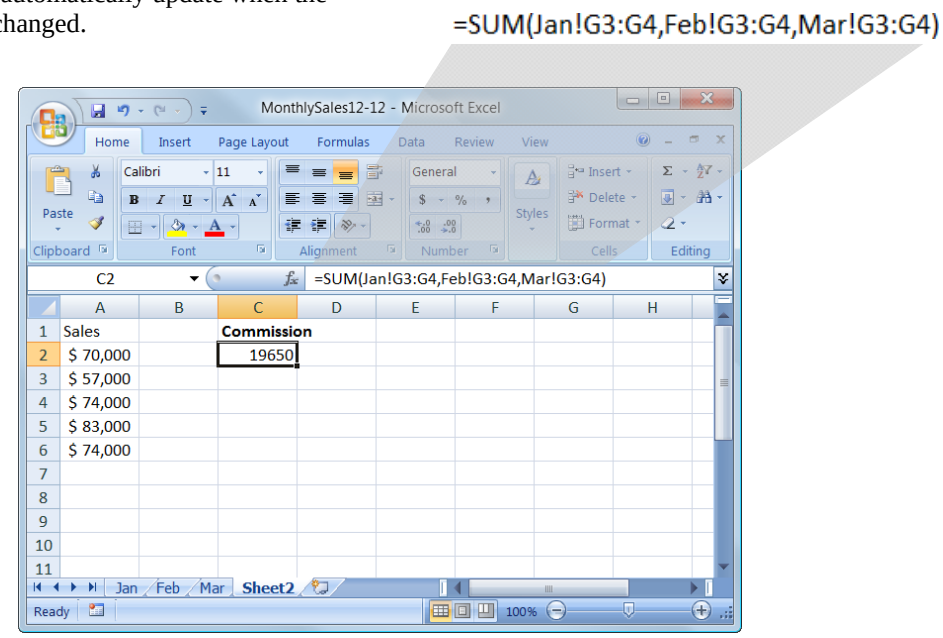


Figure 12-29: Consolidating data using a formula.

13

Working with the Web and External Data

Inserting a Hyperlink 194

Creating a Web Page from a Workbook 195

Importing Data from an Access Database or Text File 196

Importing Data from the Web and Other Sources 198

Import data from the Web 198

Import data from other sources 199

Working with Existing Data Connections 200

Access existing connections 200

Manage connections 200

Excel's Internet features let you add hyperlinks to your workbooks to link them to another workbook, a file created in another program, or even a Web page. You can save a worksheet as a Web page so that other users can view it and you can even retrieve information stored on a Web page and place it in your worksheet.

Inserting a Hyperlink

In this lesson, you will learn how to use hyperlinks in Excel. A hyperlink is text or an image that points to a file, a specific location in a file, or a Web page on your computer, on a network, or on the Internet. Whenever you click on a hyperlink, you jump to the hyperlink's destination (if it's available).

A hyperlink is usually indicated by colored and underlined text. On the Internet, hyperlinks are used all the time to move between different Web pages.

1. Select the cell you want to use for the hyperlink and enter the text or image you want to hyperlink.

2. Click the **Insert** tab on the Ribbon, and click the **Hyperlink** button in the Links group.

Other Ways to Insert a Hyperlink:
Select the text and press **<Ctrl>** + **<K>**. Or, right-click the cell and select **Hyperlink** from the contextual menu.

The Insert Hyperlink dialog box appears. There are four different types of Hyperlink destinations you can create:

- **Existing File or Web Page:** Creates a link that takes you to another Excel workbook or to a file created in another program, such as a Microsoft Word document, or to a Web page on the Internet.
- **Place in This Document:** Takes you to a bookmark in the same document.
- **Create New Document:** Creates a new Excel workbook and inserts hyperlinked text into your existing workbook that connects to the new one.
- **E-mail Address:** Creates a clickable e-mail address.

3. Either browse to or enter the hyperlink's destination and click **OK**.

The hyperlink is created. Now whenever you click the hyperlink, Excel will take you to the hyperlink's destination file or the location that you specified.

Tips

✓ To edit an existing hyperlink, right-click the hyperlink and select **Edit Hyperlink** from the contextual menu.

✓ To remove a hyperlink, right-click the hyperlink and select **Remove Hyperlink** from the contextual menu.

Exercise

- **Exercise File:** TradeShow13-1 xlsx, Mileage13-1 xlsx
- **Exercise:** Open the TradeShow13-1 xlsx workbook. Type "Mileage Report" in cell A10, then hyperlink that text to the Mileage13-1 file in your Practice folder.
  Click the hyperlink you just created to open the Mileage13-1 xlsx file.

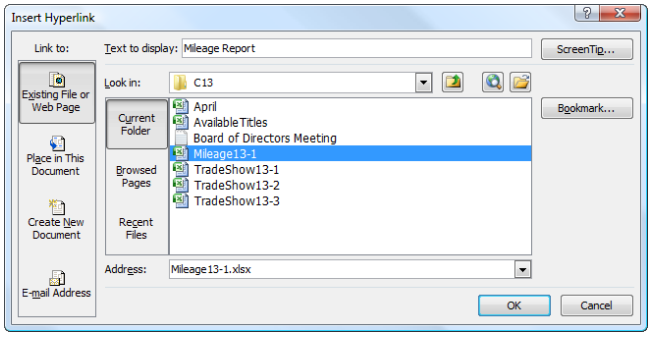
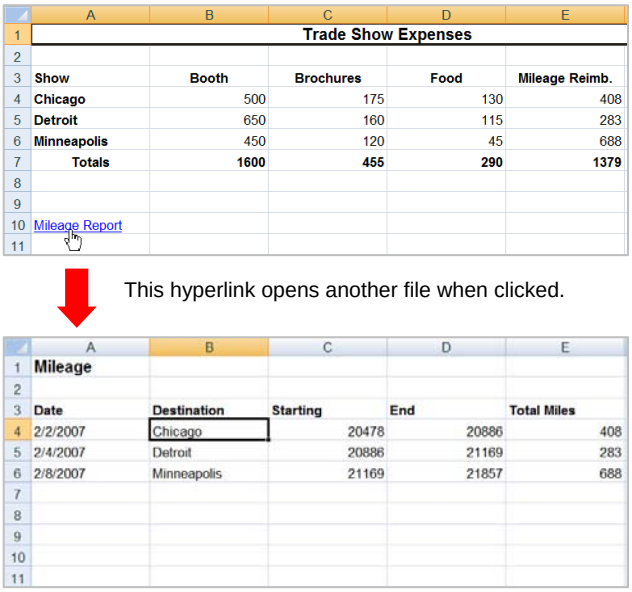


Figure 13-1: The Insert Hyperlink dialog box.



	A	B	C	D	E
1	Trade Show Expenses				
2					
3	Show	Booth	Brochures	Food	Mileage Reimb.
4	Chicago	500	175	130	408
5	Detroit	650	160	115	283
6	Minneapolis	450	120	45	688
7	Totals	1600	455	290	1379
8					
9					
10	Mileage Report				
11					

	A	B	C	D	E
1	Mileage				
2					
3	Date	Destination	Starting	End	Total Miles
4	2/2/2007	Chicago	20478	20886	408
5	2/4/2007	Detroit	20886	21169	283
6	2/8/2007	Minneapolis	21169	21857	688
7					
8					
9					
10					
11					

Figure 13-2: Click hyperlinked text to display the linked file or Web page.

Creating a Web Page from a Workbook

This lesson explains how you can save your Excel worksheets as Web pages that can be viewed in a Web browser.

1. Open the workbook.

2. Click the **Office Button** on the Ribbon and select **Save As**.

The Save As dialog box appears.

3. Click the **Save as type** list arrow and select **Web Page**.

New options appear in the dialog box.

Tip: If you want to add a title to the worksheet when it appears as a Web page, click the **Change Title** button and enter a title.

4. Click the **Publish** button.

The Publish as Web Page dialog box appears. Here you can choose which item you want to publish and select where you want to save the Web page file.

5. Click the **Choose** list arrow and select which part of the workbook you want to publish as a Web page, if necessary.

6. Click the **Browse** button and select a location for the file, if necessary.

You may want to save the file to a Web server so others can access it.

7. Click the **Open published web page in browser** option to select it and click the **Publish** button.

Excel opens the Web page in your computer's Web browser.

Tips

- ✓ Select **AutoRepublish every time this workbook is saved** if you want the Web page file to update each time the workbook file is updated.
- ✓ This process makes a spreadsheet ready for publishing on the Internet. Contact your network or web site administrator for the best way to publish a workbook as a web page.

Exercise

- **Exercise File:** TradeShow13-2 xlsx
- **Exercise:** Save and publish the workbook as a Web page and preview the workbook in your Web browser.

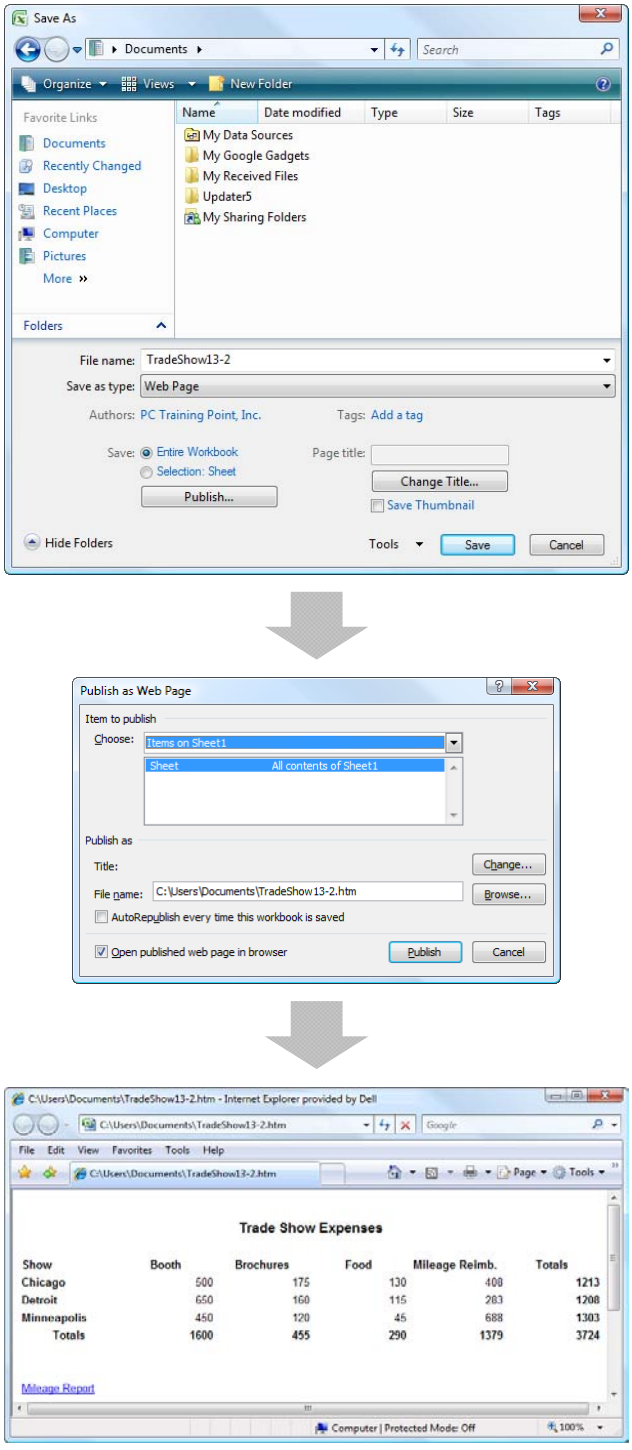


Figure 13-3: Publishing a workbook as a Web page.

Importing Data from an Access Database or Text File

Excel can connect to external data sources including other files, databases or Web pages. In order to work with data from an external source, you need to create a data connection in Excel.

Import data from an Access database

1. Click the **Data** tab on the Ribbon and click the **From Access** button in the Get External Data group.

   The Select Data Source dialog box appears. By default, it searches for data sources available on your computer and displays them in the dialog box.

   Trap: If the Get External Data group does not appear on the Ribbon, click the **Get External Data** button and select an option from the list.

2. Browse to and select the database file that contains the data you want to import. Click the **Open** button.

   The Select Table dialog box appears. Here you need to select which table you want to import from the database.

   Tip: If the Select Table dialog box does not appear, there is only one table in the database, and it is automatically selected.

3. Select a table and click **OK**.

   The Import Data dialog box appears. Here you tell Excel how you want the data displayed in your workbook—as a table, PivotTable, etc.—as well as where you want to put the data—in the existing worksheet or in a new one.

4. Select an option for how you want to view the data and then select an option for where you want to put it. Click **OK**.

   Tip: If you select to put the data in your existing worksheet, also select the cell where you want to put it.

   The data is imported from the Access database into your workbook.

Tips

- ✓ If, while connecting to external data, you see a security notice telling you that you are connecting to an external source that may not be safe, click **OK**.

Exercise

- **Exercise File:** Board of Directors Meeting.txt
- **Exercise:** Create a new workbook and import the Board of Directors Meeting.txt file data into it. In the Text Import Wizard, leave the default options selected. Save the new workbook as April.xlsx.

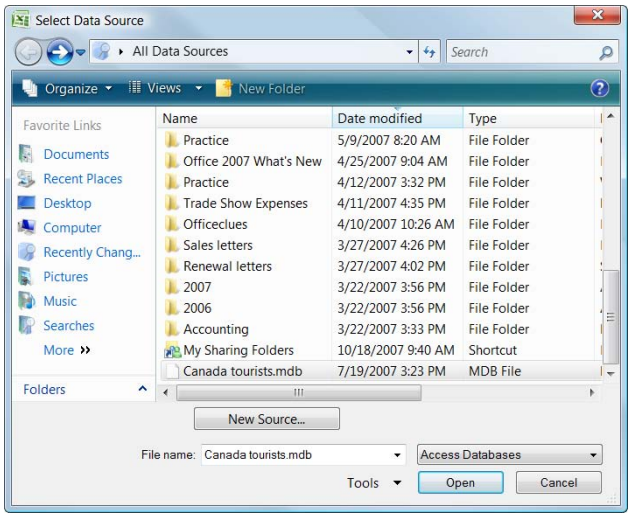


Figure 13-4: The Select

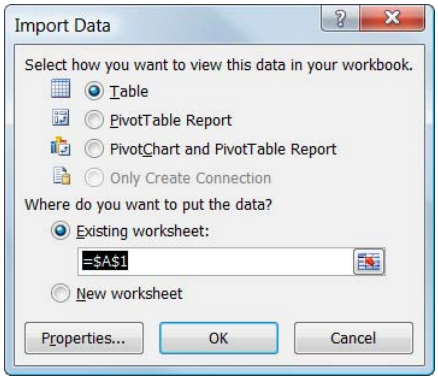


Figure 13-5: Select how you want to import the data into the workbook in the Import Data dialog box.

	A	B	C	D	E	F	G
1	Title	First Name	Last Name	Address Line 1	City	State	ZIP Code
2	Mr.	James	Britt	550 Pine Rd	Cedar Falls	MN	55543
3	Mrs.	Kim	Richter	103 7th St.	Mankato	MN	56001
4	Mr.	Joe	Pauls	39 Park Ave.	Hudson	WI	55318
5	Mrs.	Susan	Cho	4311 Riverside Lane	Minneapolis	MN	55439
6	Mrs.	Jane	Erickson	900 Redwood St. Apt #501	St. Paul	MN	55981
7	Mr.	Jeff	Mitchell	P.O. Box 103	Le Seuer	MN	56058
8	Mrs.	Melissa	Peterson	1536 Penkwe Way	Rock Island	IL	61201
9							
10							
11							
12							

Figure 13-6: The Access database data imported into a table in Excel.

Import data from a text file

You can also import data from text files with .txt and .csv extensions.

1. Click the **Data** tab on the Ribbon and click the **From Text** button in the Get External Data group.

   The Import Text File dialog box appears.

   Trap: If the Get External Data group does not appear on the Ribbon, click the **Get External Data** button and select an option from the list.

2. Browse to and select the text file that contains the data you want to import. Click the **Import** button.

   Step 1 of the Text Import Wizard appears. Here you need to select whether the file is delimited or fixed width. You also need to select the row of text from which you want to start importing data.

3. Select a file type and enter the row at which you want to start importing. Click **Next**.

   Step 2 of the Text Import Wizard appears. Specify the delimiters used to separate the data in the text file.

4. Select delimiters or specify fixed width column breaks. Click **Next**.

   Step 3 of the Text Import Wizard appears. Select a column and choose the format you want to use for its data.

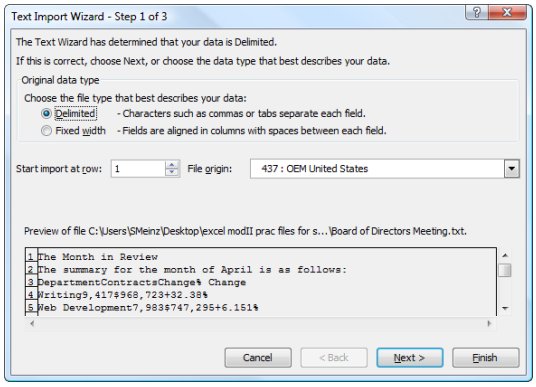
   You can also select "Do not import column (skip)" and the column will not be included in the Excel workbook.

5. Specify a format for each column, or skip the column. Click **Finish**.

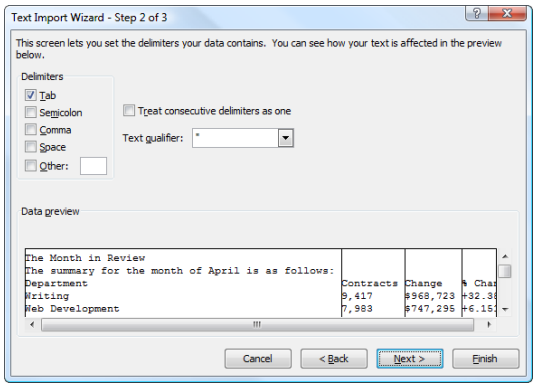
   The Wizard closes and the Import Data dialog box appears, asking you where you want to import the data in the workbook.

6. Select where you want to put the imported data. Click **OK**.

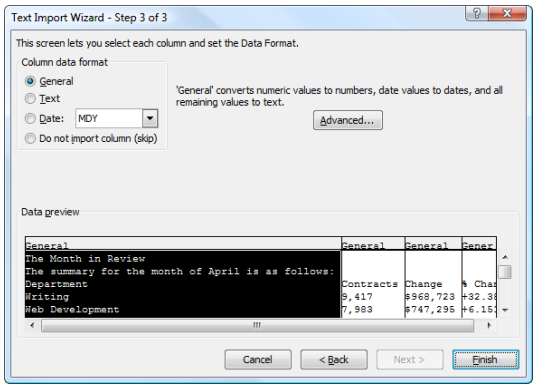
   The data from the text file appears in the workbook.


Text Import Wizard - Step 1 of 3
The Text Wizard has determined that your data is Delimited.
If this is correct, choose Next, or choose the data type that best describes your data.
Original data type
Choose the file type that best describes your data:
Delimited - Characters such as commas or tabs separate each field.
Fixed width - Fields are aligned in columns with spaces between each field.
Start import at row: 1
File origin: 437 : OEM United States
Preview of file C:\Users\SMeinz\Desktop\excel modII prac files for s...\Board of Directors Meeting.txt.
1 The Month in Review
2 The summary for the month of April is as follows:
3 DepartmentContracts$Change% Change
4 Writing9,417$968,723+32.38%
5 Web Development7,983$747,295+6.151%
Cancel
< Back
Next >
Finish

Step 1: Select the file type that describes the data you want to import from the text file.



Step 2: Set the delimiter used to separate data in the text file. A preview is shown of how the data looks with the selected delimiter.


Text Import Wizard - Step 3 of 3
This screen lets you select each column and set the Data Format.
Column data format
General
Text
Date: MDY
Do not import column (skip)
'General' converts numeric values to numbers, date values to dates, and all remaining values to text.
Advanced...
Data preview
The Month in Review
The summary for the month of April is as follows:
Department Contracts Change
Writing 9,417 $968,723
Web Development 7,983 $747,295
Cancel
< Back
Next >
Finish

Step 3: Select a column and choose the format you want to use for the data. Or, select the option to skip the column.

Figure 13-8: Importing data with the Text Import Wizard.

	A	B	C	D
1	The Month in Review			
2	The summary for the month of April is as follows:			
3	Department	Contracts	Change	% Change
4	Writing	9,417	$968,723	32.38%
5	Web Development	7,983	$747,295	6.15%
6	Design	5,205	$529,207	13.80%
7				

Figure 13-7: Data imported from a

Importing Data from the Web and Other Sources

Instead of copying and pasting data into a worksheet from a Web page—which normally causes no end of formatting problems—you can import data from a growing number of Web sites. You can also get data from a variety of sources such as a SQL server.

Tips

✓ Some data sources may require special security access, and the connection process can often be very complex. Enlist the help of your organization's technical support staff to assist you.

Import data from the Web

1. Click the **Data** tab on the Ribbon and click the **From Web** button in the Get External Data group.

   The New Web Query window opens, displaying the Internet Explorer Home page.

   Trap: If the Get External Data group does not appear on the Ribbon, click the **Get External Data** button and select an option from the list.

2. Enter the address of the Web site you want to visit in the Address box and click **Go**.

   If the Web site is set up for you to export data, you'll see table selection arrows next to the pieces of data.

3. Click the table selection arrows next to the data you want to import, then click **Import**.

   Tip: When you click a yellow table selection arrow, it turns into a green checkmark.

   The Import Data dialog box appears. Here you can specify where you want to put the data.

4. Select an option for where you want to put the data. Click **OK**.

   The Web data appears in the workbook.

Exercise

- **Exercise File:** None required.
- **Exercise:** Create a new workbook and import data from http://www.customguide.com/online_learning htm.
  Import the Available Titles section at the bottom of the Web page into the workbook.
  Close the workbook without saving.

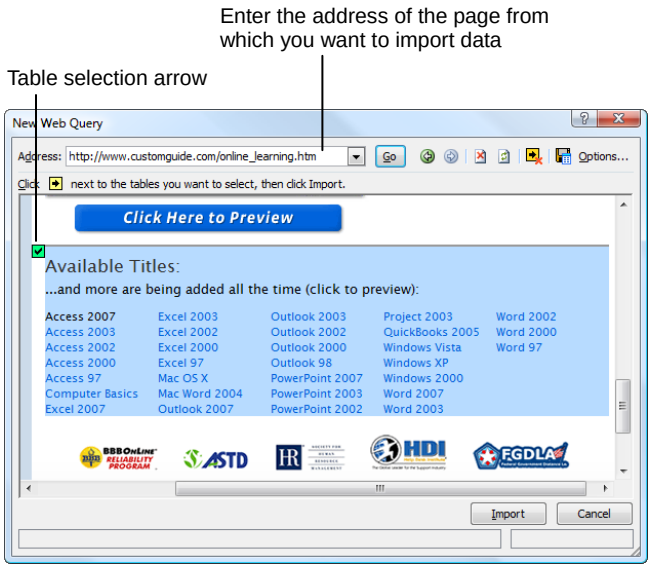
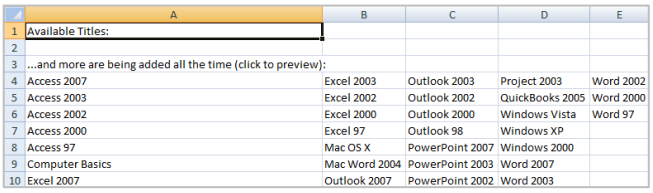

Enter the address of the page from which you want to import data
Table selection arrow
New Web Query
Address: http://www.customguide.com/online_learning.htm
Go
Options...
Click next to the tables you want to select, then click Import.
Click Here to Preview
Available Titles:
...and more are being added all the time (click to preview):
Access 2007 Excel 2003 Outlook 2003 Project 2003 Word 2002
Access 2003 Excel 2002 Outlook 2002 QuickBooks 2005 Word 2000
Access 2002 Excel 2000 Outlook 2000 Windows Vista Word 97
Access 2000 Excel 97 Outlook 98 Windows XP
Access 97 Mac OS X PowerPoint 2007 Windows 2000
Computer Basics Mac Word 2004 PowerPoint 2003 Word 2007
Excel 2007 Outlook 2007 PowerPoint 2002 Word 2003
Import
Cancel

Figure 13-9: The New Web Query Window.



	A	B	C	D	E
1	Available Titles:				
2					
3	...and more are being added all the time (click to preview):				
4	Access 2007	Excel 2003	Outlook 2003	Project 2003	Word 2002
5	Access 2003	Excel 2002	Outlook 2002	QuickBooks 2005	Word 2000
6	Access 2002	Excel 2000	Outlook 2000	Windows Vista	Word 97
7	Access 2000	Excel 97	Outlook 98	Windows XP	
8	Access 97	Mac OS X	PowerPoint 2007	Windows 2000	
9	Computer Basics	Mac Word 2004	PowerPoint 2003	Word 2007	
10	Excel 2007	Outlook 2007	PowerPoint 2002	Word 2003	

Figure 13-10: Imported Web data.

Import data from other sources

1. Click the **Data** tab on the Ribbon. Click the **From Other Sources** button in the Get External Data group.

   Trap: If the Get External Data group does not appear on the Ribbon, click the **Get External Data** button and select an option from the list.

   Several data source options appear.

2. Select a data source, then follow the onscreen instructions or instructions from your organization's technical support staff to complete the connection.

Working with Existing Data Connections

Besides allowing you to add connections, Excel has tools to help you view and manage the data connections that are accessible in your workbook, on your computer, or on your network.

Access existing connections

If you have added connections that you want to display, or if you want to open a connection that Excel has built in for you, you can use the Existing Connections dialog box.

1. Click the **Data** tab on the Ribbon and click the **Existing Connections** button in the Get External Data group.

   Trap: If the Get External Data group does not appear on the Ribbon, click the **Get External Data** button and select an option from the list.

   The Existing Connections dialog box appears. Here you can see the connections in the open workbook, on your network, or on your computer. Excel has automatically included a few Web site connections in the "on your computer" section.

2. Select the connection you want to display and click the **Open** button.

   The Import Data dialog box appears.

3. Select how and where you want to display the data in your workbook and click **OK**.

   The data appears in your workbook.

Manage connections

You can see the connections that are present in your workbook and change their properties using the commands in the Connections group.

1. Click the **Data** tab on the Ribbon.

   The Connections group offers several options for working with your workbook's connections:

   - **Connections button:** Display the Workbook Connections dialog box where you can see the connections and locations of connections in your workbook. Here you can add, remove, refresh, or adjust the properties of the connections.

Exercise

- **Exercise File:** April xlsx
- **Exercise:** Click cell outside the A1:D6 data range and view the existing connections from which you can get external data. Close the dialog box.
  Click a cell within the A1:D6 data range and click the Connections button in the Connections group. Click "Click here to see where the selected connections are used" in the Workbook Connections dialog box. Close the dialog box.
  Click the Properties button in the Connections group to view the properties for the external data range. Close the dialog box.

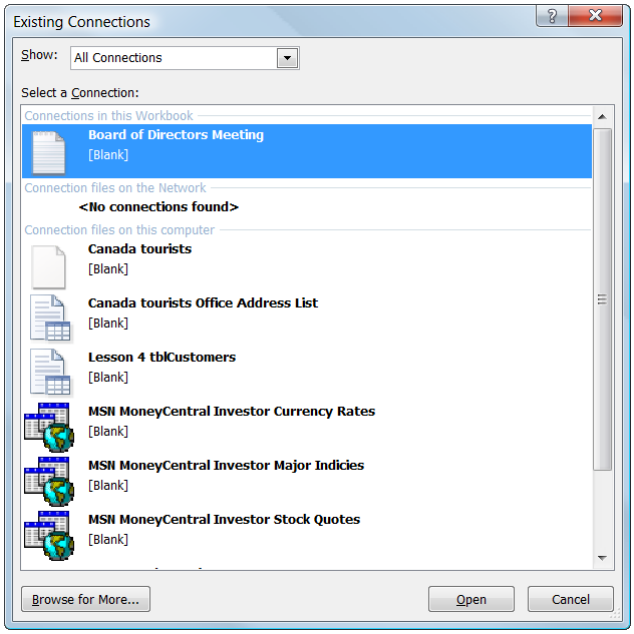


Figure 13-11: The Existing Connections dialog box.

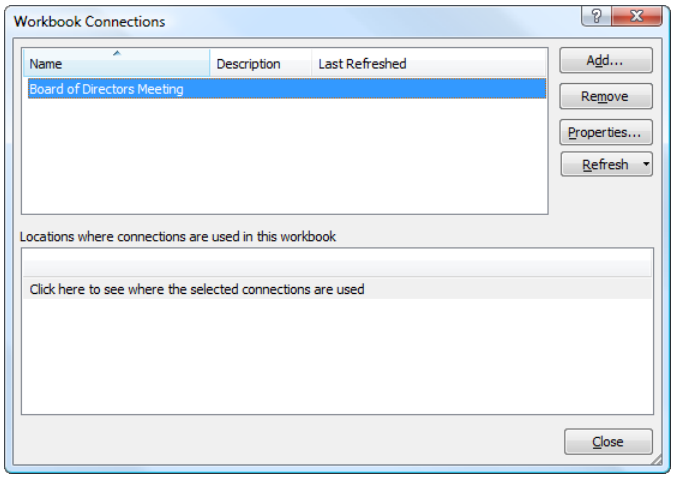


Figure 13-12: The Workbook Connections dialog box.

- **Properties button**: Change the connection properties of the imported data currently selected in your worksheet. Properties include the name of the connection, formatting and layout, and refresh options. Refer to Table 13-1: Data Range Properties for more information about properties.
- **Refresh All button:** Updates workbook data to match the external data source.
- **Edit Links:** Shows the other files the workbook is connected to so you can edit or remove the links.

2. Click a button in the Connections group and work with the connection as necessary.

Tips

✓ When working with workbooks that have data connections, a Security Warning banner may appear below the Ribbon telling you that connections have been disabled. Click the **Options** button, select **Enable this content**, and click **OK**.

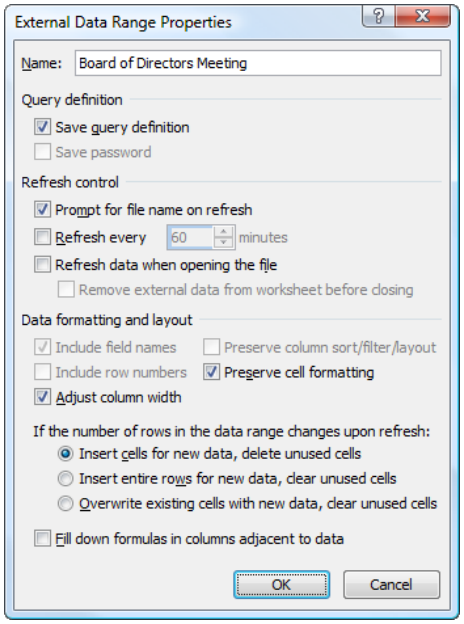

External Data Range Properties
Name: Board of Directors Meeting
Query definition
Save query definition
Save password
Refresh control
Prompt for file name on refresh
Refresh every 60 minutes
Refresh data when opening the file
Remove external data from worksheet before closing
Data formatting and layout
Include field names
Preserve column sort/filter/layout
Include row numbers
Preserve cell formatting
Adjust column width
If the number of rows in the data range changes upon refresh:
Insert cells for new data, delete unused cells
Insert entire rows for new data, clear unused cells
Overwrite existing cells with new data, clear unused cells
Fill down formulas in columns adjacent to data
OK
Cancel

Figure 13-13: The External Data Range Properties dialog box.

Table 13-1: Data Range Properties

Save query definition	Check this option so your worksheet remembers where to go when it refreshes the data. Uncheck it so the data source can not be refreshed again.
Save password	Check this option so that Excel automatically enters the password when the data source is refreshed.
Enable background refresh	Check this option so that when you refresh the data source you can continue working in Microsoft Excel. Otherwise, you must wait until Excel is completely finished refreshing the data source to work with the program.
Refresh every	Check this option to refresh the data source at specific intervals, and then enter the number of minutes you want between refreshes in the minutes box.
Refresh data on file open	Check this option so that the data source automatically refreshes when you open the workbook. The Save query definition check box must be selected to refresh the data.
Remove external data from worksheet before saving	Check this option so that Excel deletes the data source information when you save the worksheet.
Include field names	Check this option so that Excel automatically inserts the data source's field names as column labels for the data source.
Preserve column sort/filter/layout	Check this option to preserve any sort order, filtering or column order changes you make in a data source when it is refreshed.
Include row numbers	Check this option to allow the data source to use its own row numbering.
Preserve cell formatting	Check this option to retain cell formatting that you apply in Microsoft Excel when you refresh the data source.
Adjust column width	Check this option so that Excel automatically adjusts its column width to display the imported data source information.
Fill down formulas in columns adjacent to data	Check this option if you want Excel to copy formulas in a data source to new columns when it is refreshed.

14

Working with Macros

Recording a Macro 203

Playing and Deleting a Macro..... 205
Play a macro..... 205
Delete a macro 205

Adding a Macro to the Quick Access Toolbar 206

Editing a Macro's Visual Basic Code..... 207

Inserting Copied Code in a Macro 208
Display the Developer tab and enable macros 208
Enable macros..... 208
Insert code in a macro 208

Declaring Variables and Adding Remarks to VBA Code 210
Declare a variable (DIM statement)..... 210
Add a remark to a procedure (REM statement)..... 211

Prompting for User Input..... 212

Using the If…Then…Else Statement 213

If you find yourself performing the same task over and over again, you might want to consider creating a macro to complete the task for you. A macro helps you perform routine tasks by automating them. Instead of manually performing a series of time-consuming, repetitive actions, you can record a single macro that does the entire task all at once for you.

This entire chapter is devoted to macros. We start with the basics: learning how to record and play a macro. Then you'll move into some more advanced topics including how to write and edit macros using the Visual Basic programming language.

Using Exercise Files
This chapter suggests exercises to practice the topic of each lesson. There are two ways you may follow along with the exercise files:

- Open the exercise file for a lesson, perform the lesson exercise, and close the exercise file.
- Open the exercise file for a lesson, perform the lesson exercise, and keep the file open to perform the remaining lesson exercises for the chapter.

The exercises are written so that you may "build upon them", meaning the exercises in a chapter can be performed in succession from the first lesson to the last.

Recording a Macro

A macro is a series of Excel commands and instructions that are recorded so that they can be executed as a single command. Instead of manually performing a series of time-consuming, repetitive actions in Excel yourself, you can create a macro to perform the task for you.

There are two ways to create a macro: by recording them or by writing them in Excel's Visual Basic programming language. This lesson explains the easy way to create a macro—by recording the task(s) you want the macro to execute for you.

When you record a macro, imagine you're being videotaped; everything is recorded—all your commands, the data you enter, even any mistakes you make. Before recording a macro, it's helpful to write down a script that contains all the steps you want the macro to record. Practice or rehearse your script a couple times, to make sure it works, before you actually record it. If you do make a mistake while recording a macro, don't worry—you can always delete the existing macro and try again or edit the macro's Visual Basic source code to fix the mistake.

1. Click the **View** tab on the Ribbon and click the **Macros** button list arrow in the Macros group. Select **Record Macro**.

The Record Macro dialog box appears.

Tip: If you click the **Macros** button list arrow and select **Use Relative References**, actions are recorded relative to the initially selected cell.

2. Enter a name for the macro and press **<Tab>**.

Next you can enter a shortcut key that will allow you to run the macro by pressing the <Ctrl> + <shortcut key>.

3. Enter a shortcut key, if desired.

Now you can tell Excel where to store the macro. You have three choices:

- **Personal Macro Workbook:** If you want a macro to be available whenever you use Microsoft Excel, store the macro in your Personal Macro Workbook.
- **New Workbook:** Stores the macro in a new workbook.
- **This Workbook:** Stores the macro in the active or current workbook.

Exercise

- **Exercise File:** WeeklySales14-1 xlsx
- **Exercise:** Create a macro that inserts the current date with Bold and Center Alignment formatting:
  Click cell B3. Open the Record Macro dialog box and name the new macro "DateStamp". Assign the macro the shortcut <Ctrl> + <d>, make sure This Workbook is selected, and enter the description "This macro inserts the current date". Click OK.
  To record the macro, type =Today() and click the Enter button on the Formula Bar. Make sure cell B3 is selected, copy it, and use the Paste Special command to paste values only in cell B3. Apply bold and center formatting. Stop recording the macro.

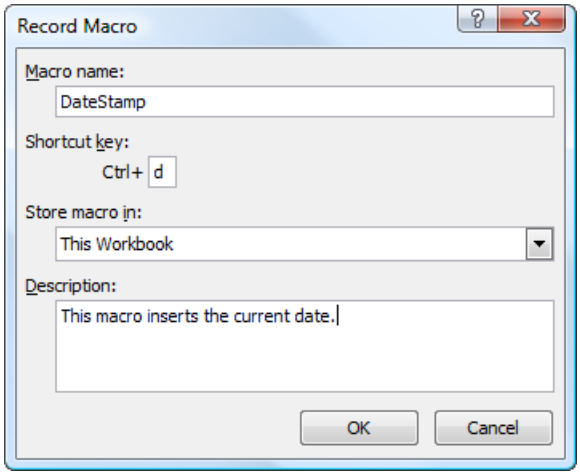


Figure 14-1: The Record Macro dialog box.

4. Click the **Store macro in** list arrow and select where you want to store the macro.

5. Click in the Description box and enter a description for the macro, if desired.

6. Click **OK**.

   Now comes the important part—recording the macro.

7. Record the macro: perform the actions you want to include in your macro.

   Once all the actions have been recorded, stop recording.

8. Click the **Macros** button list arrow in the Macros group and select **Stop Recording**.

   The macro is recorded and ready to use.

   Other Ways to Stop Recording:
   Click the **Stop Recording** button on the status bar.

Tips

- ✓ When you save a workbook with macros in it, you need to click the **Save as type** list arrow in the Save As dialog box and select the **Excel Macro-Enabled Workbook** file type.

Playing and Deleting a Macro

Once you've recorded a macro, you're ready to view and play it.

Tips

✓ If you see a Security Warning message beneath the Ribbon telling you that macros have been disabled, click the **Options** button, select **Enable this content**, and click **OK**.

Play a macro

1. Click the **View** tab on the Ribbon and click the **Macros** button list arrow in the Macros group. Select **View Macros**.

   The Macro dialog box appears. Here you can see the macros that you have recorded.

2. Select the macro you want to run and click the **Run** button.

   The macro runs, performing the steps you recorded.

Delete a macro

1. Click the **View** tab on the Ribbon and click the **Macros** button list arrow in the Macros group. Select **View Macros**.

   The Macro dialog box appears.

2. Select the macro you want to delete and click the **Delete** button.

3. Click **Yes**.

   The macro is deleted.

Exercise

- **Exercise File:** WeeklySales14-2 xlsm
- **Exercise:** Run the DateStamp macro so that the current date appears in cell C3.

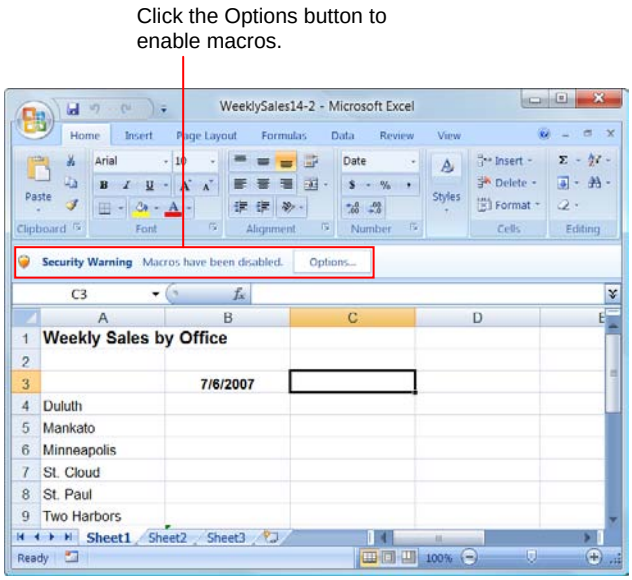


Figure 14-2: Macros are usually disabled when the file is opened, even if the file is saved to be macro-enabled.

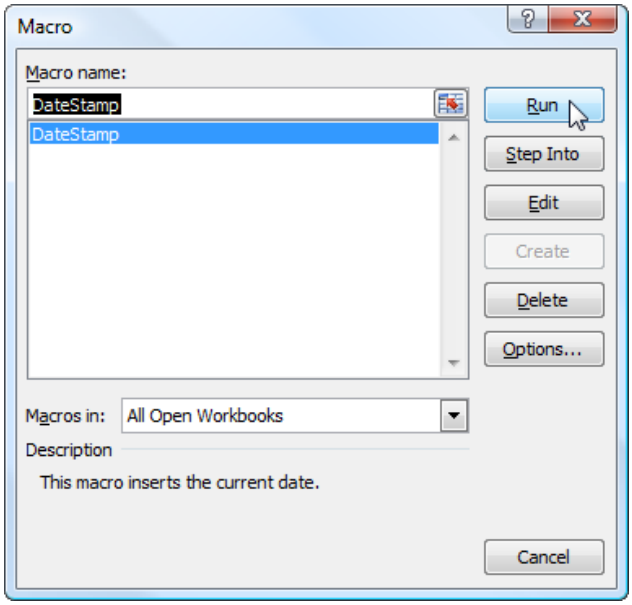


Figure 14-3: Playing a macro in the Macro dialog box.

Adding a Macro to the Quick Access Toolbar

To make macros fast and easy to access, you can add them as buttons on the Quick Access Toolbar.

Tips

✓ It may seem obvious, but you must create a macro before you can add it to the Quick Access Toolbar.

1. Click the **Customize Quick Access Toolbar** button next to the Quick Access Toolbar and select **More Commands**.

   The Customize tab of the Excel Options dialog box appears.

2. Click the **Choose commands from** list arrow and select **Macros**.

   A list of your macros appears.

3. Select the macro you want to add to the Quick Access Toolbar and click the **Add** button.

   The macro now appears in the list on the right side of the dialog box. At this point, you can select a symbol to represent your macro on the toolbar.

4. Click the **Modify** button.

   The Modify Button dialog box appears, displaying dozens of symbols to choose from.

5. Select a symbol.

   You can also modify the display name that will appear when you hover over the button on the toolbar.

6. (Optional) Click in the Display name box and enter a different name for the button.

7. Click **OK** to close the Modify Button dialog box. Click **OK** to close the Excel Options dialog box.

   The macro appears as a button on the Quick Access Toolbar. Now you can click it to run the macro.

8. Click the macro button on the Quick Access Toolbar.

Tips

✓ To remove a macro from the Quick Access Toolbar, right-click the button and select **Remove from Quick Access Toolbar**.

Exercise

- **Exercise File:** WeeklySales14-3 xlsm
- **Exercise:** Add the DateStamp macro to the Quick Access Toolbar, selecting the green triangle symbol to represent the macro on the Toolbar.
  Then remove the DateStamp macro from the Quick Access Toolbar.

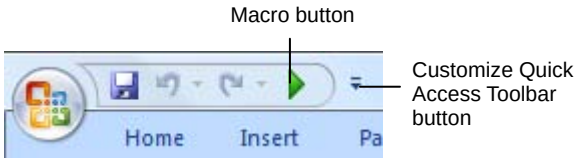


Figure 14-4: The Quick Access Toolbar with a macro button added.

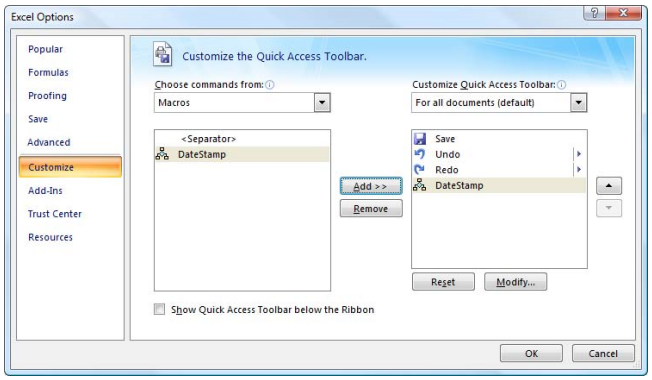


Figure 14-5: Adding the DateStamp macro button to the Quick Access Toolbar.

Figure 14-6: Selecting a button symbol in the Modify Button dialog box.

Editing a Macro's Visual Basic Code

This lesson introduces you to the Visual Basic (also called VB or VBA) programming language—the code Excel uses to record macros. Using the Visual Basic language and the Visual Basic editor you can make minor changes to your macros once you have recorded them.

The best way to learn about Visual Basic is to view existing code. In this lesson we'll look at how to view and edit the code for an existing macro.

1. Click the **View** tab on the Ribbon and click the **Macros** button list arrow in the Macros group. Select **View Macros**.

The Macro dialog box appears. Here you can see the macros that you have recorded.

2. Select the macro you want to edit and click the **Edit** button.

The Microsoft Visual Basic Editor program appears. Those funny-looking words are Visual Basic—the language that was used by Excel to record the macro you created.

You don't have to learn Visual Basic to be proficient at Excel, but knowing the basics can be helpful if you ever want to modify an existing macro. If you take a close look at the code for your macro, some of the procedures should make a little sense to you. For example, if your macro contains a copy or paste command, you may see the text "Selection.Copy" or "Selection.Paste".

You can delete sections of code to delete certain actions from the macro, or edit the code to change the macro's actions.

3. Edit the macro's code as desired, then click the **Save** button on the Standard toolbar.

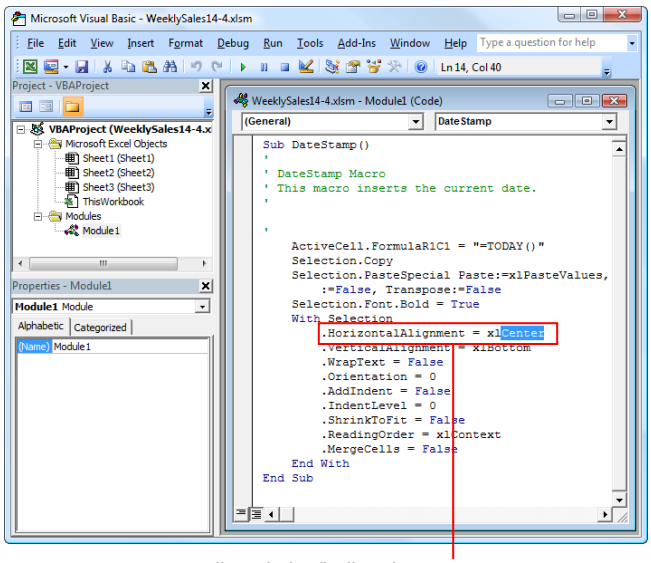
4. Click the **Close** button in the upper right-hand corner.

The Visual Basic Editor window closes.

Exercise

- **Exercise File:** WeeklySales14-4 xlsm
- **Exercise:** Open the DateStamp macro in editing mode. Edit the code so that the date is horizontally aligned to the left instead of on center.

  Run the macro in cell D3 to see that the macro enters the date so it is aligned to the left side of the cell.



Edit code by finding the property you want to change, and changing its code. For example, this property controls if the text is aligned to the Left, Center, or Right side of the cell.

Figure 14-7: Editing a macro's code using the Microsoft Visual Basic Editor.

Inserting Copied Code in a Macro

Unless you're a programmer, it's unlikely that you will ever learn many of Visual Basic's hundreds of functions, statements, and expressions—and that's okay.

A very useful technique you can use to edit and create macros is to insert code that has been copied, or plagiarized, from another macro. This technique lets you add steps to your existing macros by recording the steps you want to add in new macros, copying the appropriate code and inserting it into the existing macro.

Display the Developer tab and enable macros

Before copying code, we'll display the Developer tab and enable macros by turning off macro security.

1. Open any workbook, click the **Office Button** and click **Excel Options**.

   The Excel Options window appears.

2. Click the **Show Developer tab in the Ribbon** check box to select it. Click **OK**.

   Next, enable all macros.

3. Click the **Developer** tab on the Ribbon and click the **Macro Security** button in the Code group.

   The Trust Center window appears, displaying the Macro Settings.

4. Select the **Enable all macros…** option.

   Tip: For security purposes, once you're done working with macros you'll want to disable them again in the Trust Center.

   Other Ways to Enable Macros for a Single Workbook:
   When a file that uses macros is open, click the **Options** button in the Security Warning bar. Select the **Enable macros** option and click **OK**.

Insert code in a macro

1. Open the workbooks containing the macros you want to work with.

   This includes both the workbook with the macro to be copied from and the workbook with the macro to be pasted into.

Exercise

- **Exercise File:** ExpenseReport14-5 xlsm
- **Exercise:** The object of the exercise is to copy the code that inserts today's date from the DateStamp macro into the ExpenseFillin macro.
  First, open the ExpenseReport14-5 workbook, display the Developer tab and enable macros.
  Open the DateStamp macro and copy the block of code starting at the line `ActiveCell.FormulaR1C1 = "=TODAY()"` and ending at the line `Selection.PasteSpecial Paste:=xlPasteValues`.
  Paste this code into the ExpenseFillin macro under the line `Range("C5").Select`
  Save the changes to the ExpenseFillin macro.
  Run the macro in cell A5.

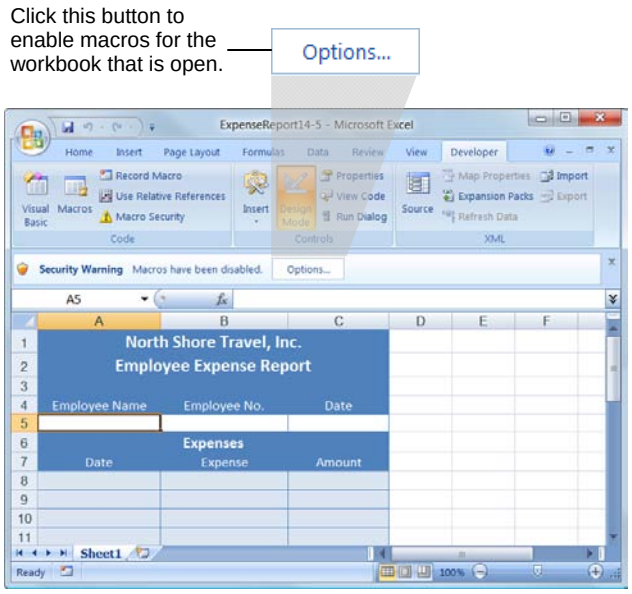


Figure 14-8: A security warning appears when a workbook that contains macros is opened.

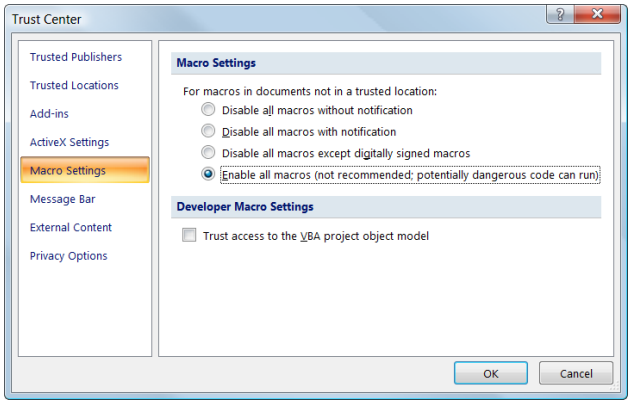


Figure 14-9: You can enable macros in the Trust Center so that macros are never blocked. Only do this if you are sure that files that you open that have macros are safe.

2. Click the **View** tab on the Ribbon and click the **Macros** button in the Macros group. Select the macro that contains the code you want to copy and click the **Edit** button.

   The Visual Basic Editor window opens. In the Project pane on the left side of the window you'll see the macros associated with all the workbooks that are open.

3. In the Project pane on the left side of the window, click the expand button to expand the source workbook's project until you see the Modules folder. Expand this folder and double-click the module that contains the code you want to copy.

   The code for the selected module, or macro, appears in the window to the right.

   Tip: A module is just like a folder where Excel puts the code each time you record a macro.

4. Scroll through the code until you see the code you want to copy, then select the code and click the **Copy** button on the Standard toolbar.

   The code is copied.

   Now open the macro in which you want to paste the copied code.

5. In the Project pane along the left side of the window, open the module in which you want to paste the copied code.

   The code for the selected module, or macro, is displayed in the window.

   Tip: If the macros you want to copy and paste between are in the same workbook, they appear in the code part of the window together. They are simply separated by a line.

6. Click where you want to paste the code and click the **Paste** button on the Standard toolbar.

   The copied code is inserted into the macro.

7. Click the **Save** button on the Standard toolbar, then click the Visual Basic Editor window's **Close** button.

   The Visual Basic Editor window closes. The macro with the newly inserted code is now ready to be run.

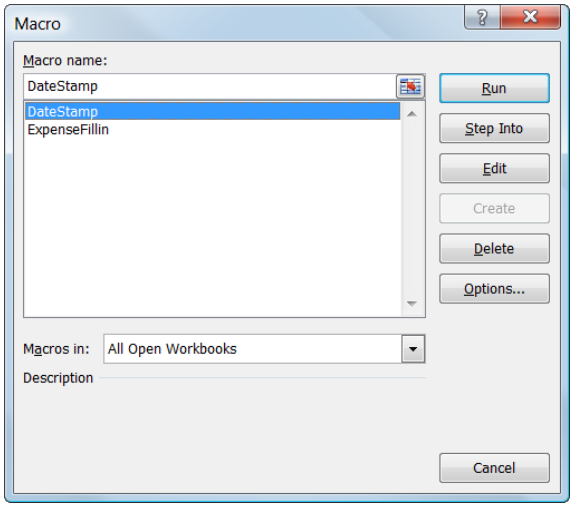
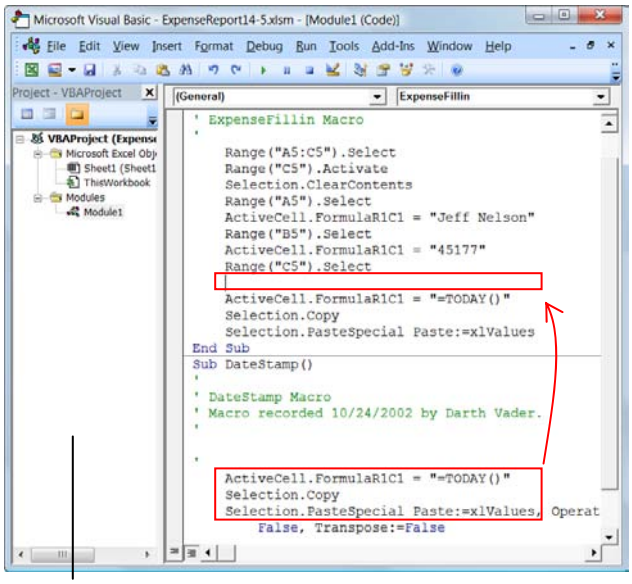


Figure 14-10: The Macro dialog box.



Navigate between macros in open workbooks in the Project pane.

This code can be copied and pasted into the ExpenseFillin macro so that today's date is inserted in cell C5.

Figure 14-11: An example of copying code from one macro into another. The macros for the open workbook are displayed on the same screen. A line separates the macros.

Declaring Variables and Adding Remarks to VBA Code

You've probably heard that programming is a lot like algebra. In algebra you use variables, like *r* in the equation $\pi r2$. Programming uses variables too. You should always declare any variables when you use them in code. Declaring a variable is like telling Excel "I'm going to be using a variable named *r* in my code."

This lesson explains how to declare variables and how to add remarks—or declare variables—in your code.

Declare a variable (DIM statement)

In Visual Basic, you use the DIM statement to declare variables, using the syntax DIM *variablename* As *datatype*.

1. Open the workbook that contains the macro with the code you want to change.

2. Click the **View** tab on the Ribbon and click the **Macros** button in the Macros group.

   The Macros dialog box appears.

3. Select the macro that contains the code you want to work on and click **Edit**.

   The macro opens in the VBA window.

4. Click where you want to add the statement in the code. Add a Dim statement at the beginning of the procedure, using the syntax Dim *VariableName* As *DataType*.

   Here's what the arguments of the Dim statement mean:

   - **VariableName:** The name of the variable. Example: EmployeeName.
   - **DataType:** The type of data you want to use in the variable, such as a number, date, or text. See Table 14-1: Data Types used in DIM Statements for a list of data types that can be used.

   Make sure you add an As between the variable name and the data type. Example: As String.

Exercise

- **Exercise File:** ExpenseReport14-6 xlsm
- **Exercise:** Open the ExpenseFillin macro in the Visual Basic Editor. Enter the following DIM and REM statements at the top of the macro's code:

```
Dim EmployeeName As String
'Declares the EmployeeName variable as a text
string
Dim EmployeeNo as Long
'Declares the EmployeeNo variable as an
integer
```

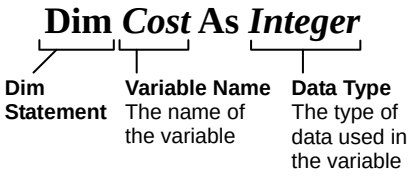


Figure 14-12: The syntax of a DIM statement.

Notice how the colors help distinguish the statements. This is something the Visual Basic Editor automatically does to help you read code.

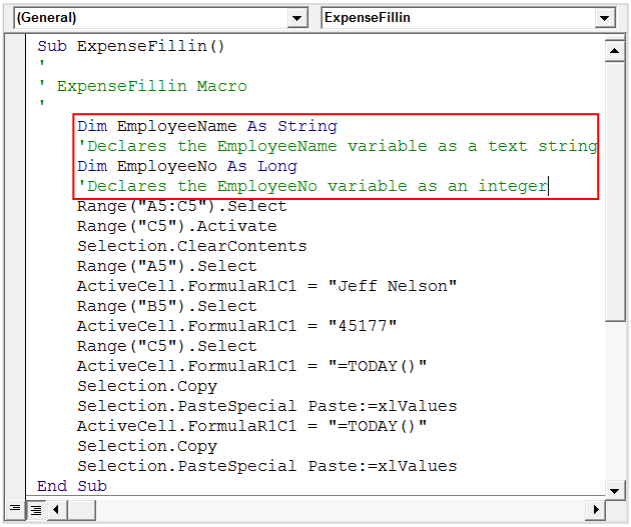


Figure 14-13: An example of DIM and REM statements.

Add a remark to a procedure (REM statement)

Code can be confusing, but you can make it easier to understand by adding explanatory remarks to it. These remarks are called REM statements. A REM statement doesn't do anything—it's just a way to add notes explaining the function of the code.

1. Open the workbook that contains the macro with the code you want to change.

2. Click the **View** tab on the Ribbon and click the **Macros** button in the Macros group.

   The Macros dialog box appears.

3. Select the macro that contains the code you want to work on and click **Edit**.

   The macro opens in the VBA window.

4. Click where you want to add the remark in the code. Type `'` (an apostrophe) then type the rest of the remark.

Table 14-1: Data Types used in DIM Statements

Date Type	Size	Range
Byte	1 byte	0 to 255
Boolean	2 bytes	True or False
Integer	2 bytes	-32,768 to 32,767
Long (Long Integer)	4 bytes	2,147,483,648 to 2,147,483,647
Date	8 bytes	January 1, 1000 to December 31, 9999
String (Text)	Varies	Approximately 2 billion characters

Prompting for User Input

When creating macros and code it is often useful to prompt the user for information. You can then use this information in any number of ways—place it in a cell, use it in a calculation, or print it in a header or footer.

This lesson explains one of the easiest ways to prompt the user for information—using the InputBox function. The InputBox function prompts the user for information by displaying a dialog box.

The syntax for the InputBox function is *InputBox("Prompt")* where "*Prompt*" is the message you want to display (usually enclosed in quotation marks).

1. Open the workbook that contains the macro with the code you want to change.

2. Click the **View** tab on the Ribbon and click the **Macros** button in the Macros group.

   The Macros dialog box appears.

3. Select the macro that contains the code you want to work on and click **Edit**.

   The macro opens in the VBA window.

4. Click where you want to add the InputBox function to the code.

5. Add an Input statement using the syntax `InputBox("Prompt")`.

Exercise

- **Exercise File:** ExpenseReport14-7.xlsm
- **Exercise:** Open the ExpenseFillin macro in the Visual Basic Editor. Enter the following InputBox statements below the second REM statement:

  EmployeeName = InputBox("Enter the Employee Name.")
  EmployeeNo = InputBox("Enter the Employee Number.")

  Run the ExpenseFillin macro entering your name and employee number when prompted.

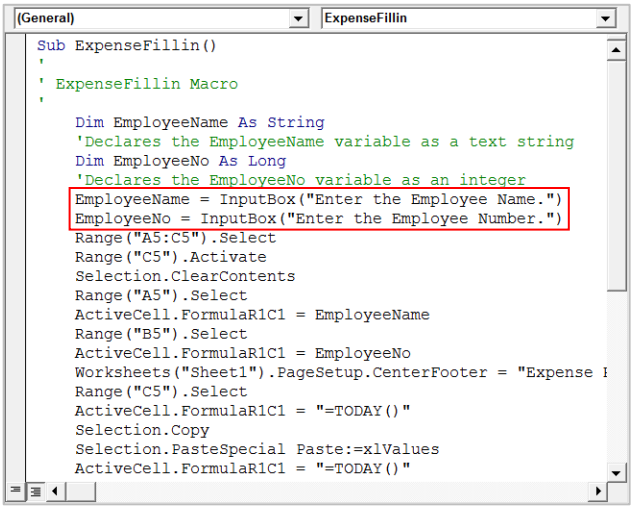


Figure 14-14: An example of the InputBox code in a macro.

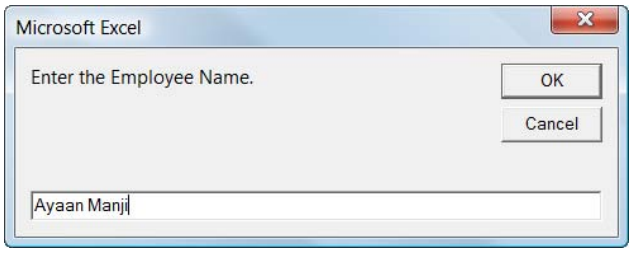


Figure 14-15: An example of a dialog box prompting a user for information.

Using the If…Then…Else Statement

The If…Then…Else statement takes action based on a certain condition. For example, if an employee's weekly sales are more than $2,500, then calculate a 5% commission bonus for the employee, else don't calculate a bonus.

1. Open the workbook that contains the macro with the code you want to change.

2. Click the **View** tab on the Ribbon and click the **Macros** button in the Macros group.

   The Macros dialog box appears.

3. Select the macro that contains the code you want to work on and click **Edit**.

   The macro opens in the VBA window.

4. Click where you want to add the remark in the code. Add an If…Then…Else statement using the following syntax (italicized text is where variables belong in the statement):

   If *condition* Then
   statement if true
   Else
   statement if false
   End If

Exercise

- **Exercise File:** ExpenseReport14-8.xlsm
- **Exercise:** Use the If…Then…Else statement to enter the employee number 45177 if the employee is Jeff Nelson, else the user will have to enter their employee number.

  Open the ExpenseFillin macro in the Visual Basic Editor. Enter the following If…Then…Else statement under the statement: EmployeeName = InputBox("Enter the Employee Name")

  ```
  If EmployeeName = "Jeff Nelson" Then
     EmployeeNo = 45177
  Else
     EmployeeNo = InputBox("Enter the Employee Number.")
  End If
  ```

  Run the ExpenseFillin macro entering Jeff Nelson as the Employee Name.

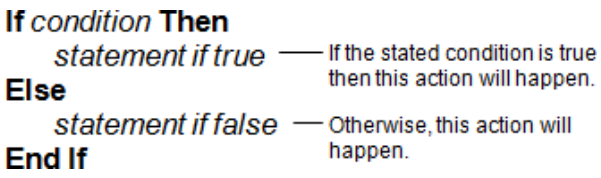

If condition Then
statement if true
If the stated condition is true then this action will happen.
Else
statement if false
Otherwise, this action will happen.
End If

Figure 14-16: The syntax of an If…Then…Else statement.

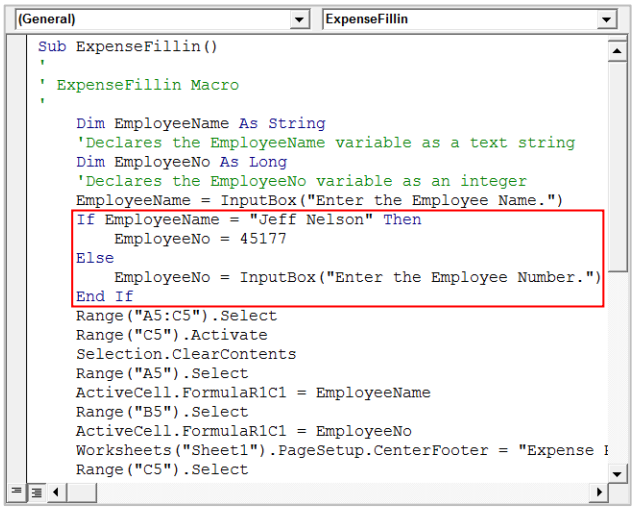


Figure 14-17: An example of an If…Then…Else statement used in a macro.

15

Working with Objects

Inserting Clip Art 215

Inserting Pictures and Graphics Files 216

Formatting Pictures and Graphics 217
- Crop a picture or graphic 217
- Recolor a picture or graphic 217
- Change the visual style of a picture or graphic 218

Inserting Shapes 219
- Draw a shape 219
- Adjust a shape 219
- Add text to a shape 220

Formatting Shapes 221
- Change the fill color of a shape 221
- Change the outline of a shape 221
- Change the visual style of a shape 222

Resize, Move, Copy and Delete Objects 223

Applying Special Effects 224

Grouping Objects 225
- Select multiple objects 225
- Group objects 225
- Ungroup objects 225

Aligning and Distributing Objects 226

Flipping and Rotating Objects 227
- Flip an object 227
- Rotate an object 227
- Use the Size and Properties dialog box 227

Layering Objects 228

Spreadsheets that include pictures, drawings, and graphics can be much more compelling and effective than ones that contain only numbers and text. Once you know how to work with pictures and graphics, you can create all kinds of cool worksheets.

This chapter explains how to use Excel's drawing tools to insert shapes; how to insert pictures and clip art; and how to format pictures, shapes and clip art.

Using Exercise Files

This chapter suggests exercises to practice the topic of each lesson. There are two ways you may follow along with the exercise files:

- Open the exercise file for a lesson, perform the lesson exercise, and close the exercise file.
- Open the exercise file for a lesson, perform the lesson exercise, and keep the file open to perform the remaining lesson exercises for the chapter.

The exercises are written so that you may "build upon them", meaning the exercises in a chapter can be performed in succession from the first lesson to the last.

Inserting Clip Art

Clip Art is a collection of pictures and graphics that Microsoft has included with Excel.

1. Click the **Insert** tab on the Ribbon and click the **Clip Art** button in the Illustrations group.

The Clip Art task pane appears.

Trap: Depending on how Excel is installed and configured on your computer, an error message may appear, informing you that the clip art feature has not been installed. Try inserting the Office 2007 CD-ROM and/or reinstalling the Excel program.

2. Type the name of what you're looking for in the "Search for" text box.

3. Click the **Search in** list arrow to select which collections you want to search in.

There are four options listed here:

- **Everywhere:** Searches all three of the collections listed below.
- **My Collections:** Searches your hard disk for clip art files stored on your computer.
- **Office Collections:** Searches for clip art files stored within the Excel program.
- **Web Collections:** Searches Microsoft Office Online for clip art files available on the Web.

4. Click the **Results should be** list arrow and make sure only Clip Art is selected.

5. Click the **Go** button.

Clip art graphics that match the search terms appear in the pane.

6. Click the graphic that you want to insert.

The graphic is inserted. When you're finished inserting clip art, close the Clip Art task pane.

7. Click the **Close** button in the upper-right corner of the Clip Art task pane.

The task pane closes.

Tips

✓ A little star in the bottom-right corner of a graphic indicates animation.

Exercise

- **Exercise File:** Catalog15-1 xlsx
- **Exercise:** Insert a bike Clip Art image into the worksheet. Close the Clip Art task pane.

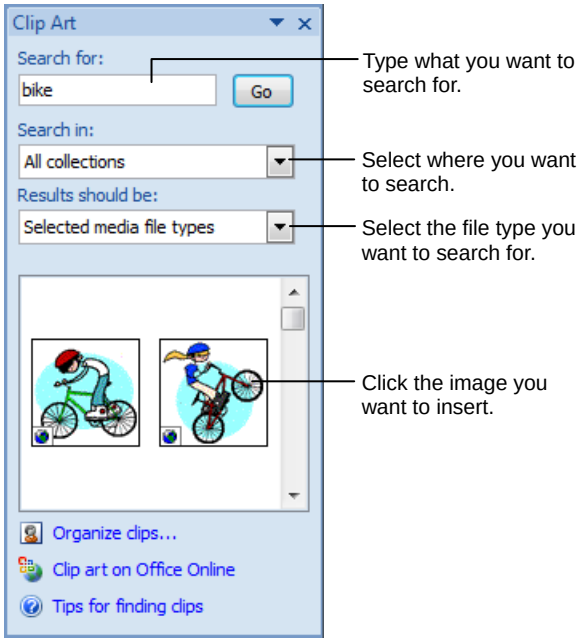


Figure 15-1: The Clip Art task pane.

Inserting Pictures and Graphics Files

In addition to inserting clip art into a worksheet, you can also insert pictures or graphics that you have on file—such as pictures uploaded from a digital camera or graphics created in another program. Table 15-1: Supported Graphics File Formats describes the types of graphics files you can insert.

1. Click the **Insert** tab on the Ribbon and click the **Picture** button in the Illustrations group.

The Insert Picture dialog box appears.

2. Navigate to the location where the file you want to insert is stored.

3. Click the name of the file you want to insert and click **Insert**.

Tip: To insert more than one picture or graphics file at a time, press and hold down the **<Ctrl>** key as you click each file.

The graphic is inserted into the worksheet, and the Format contextual tab appears on the Ribbon under Picture Tools.

Exercise

- **Exercise File:** Catalog15-2 xlsx, Jumper.jpg
- **Exercise:** Insert the Jumper.jpg image located in the Practice folder.

Table 15-1: Supported Graphics File Formats

Graphics Interchange Format	.gif, .gfa
JPEG File Format	.jpeg, .jpg, .jfif, .jpe
Microsoft Windows Bitmap	.bmp, rle, .dib
Portable Network Graphics	.png
Tagged Image File Format	.tiff
Microsoft Windows Metafile	.emf, .wmf
Computer Graphics Metafile	.cgm

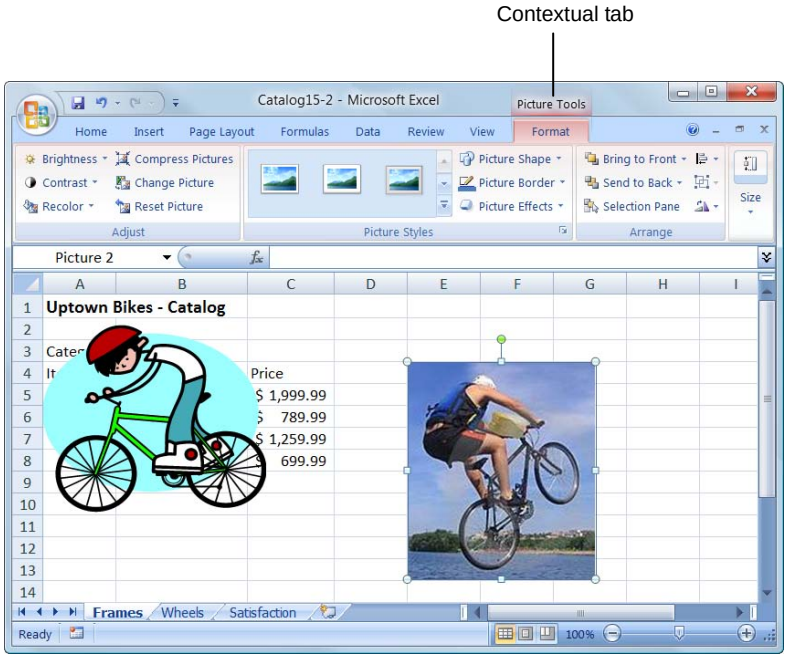


Figure 15-2: Whenever a graphic is inserted, the Format cont appears on the Ribbon by default.

Formatting Pictures and Graphics

Excel comes with several features that allow you to alter a picture or graphics file once it has been inserted. This lesson will introduce you to three of these features.

Crop a picture or graphic

When you crop a picture or graphic, you trim its horizontal and vertical sides. Cropping is useful when you only want to include a portion of a picture or graphic or when you want to center your subject inside the frame.

1. Double-click the picture or graphic that you want to crop.

   The Format contextual tab appears on the Ribbon under Picture Tools.

2. Click the **Crop** button in the Size group.

   Trap: If the Ribbon is not wide enough to display the Size group, click the Size button and select Crop.

3. Click and drag the picture or graphic's cropping handles.

   Excel displays how the picture will look with the cropping settings.

   Tip: To crop all four sides of a picture or graphic at once while maintaining the graphic's proportions, press and hold down **<Ctrl>** + **<Shift>** as you drag.

4. Click the **Crop** button in the Size group once again to turn off the cropping tool.

   Excel crops the picture or graphic.

Recolor a picture or graphic

You can also change the color of a picture or graphic.

1. Double-click the picture or graphic that you want to recolor.

   The Format contextual tab appears on the Ribbon under Picture Tools.

2. Click the **Recolor** button in the Adjust group.

   A gallery of color options appears.

3. Select a color option from the gallery.

   The picture or graphic is changed accordingly.

Exercise

- **Exercise File:** Catalog15-3 xlsx
- **Exercise:** Crop the Jumper image to half its size, then undo the action. Recolor the Jumper image to grayscale. Then, apply the Rotated, White picture style to the image.

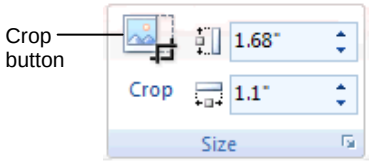


Figure 15-3: The Size group on the Format tab.

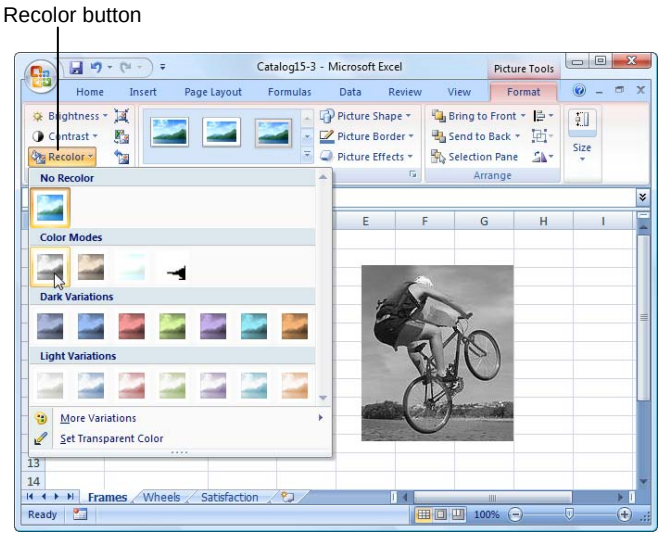


Figure 15-4: The Recolor gallery.

Change the visual style of a picture or graphic

Changing the visual style of a picture or graphic doesn't alter the picture or graphic itself, just how it appears in the worksheet.

1. Double-click the picture or graphic that you want to adjust.

   The Format contextual tab appears on the Ribbon under Picture Tools.

2. Select a style from the Picture Styles group.

   The style is applied to the picture or graphic.

   Tip: To view all the available styles, click the **More** button (▾) in the Picture Styles group to view the Picture Styles gallery.

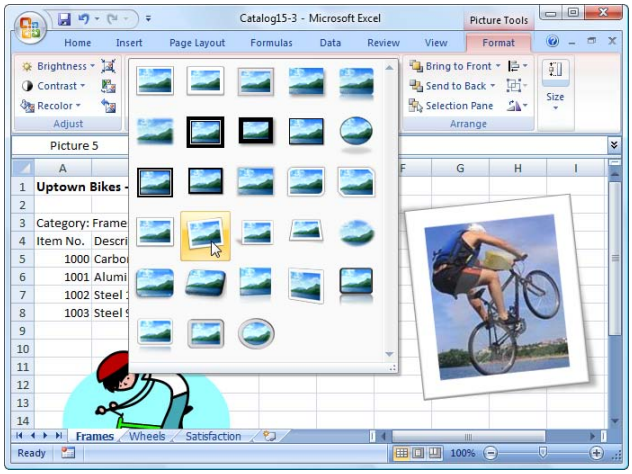


Figure 15-5: The Picture Styles gallery.

Inserting Shapes

Excel 2007 comes with an extensive set of ready-made shapes, called AutoShapes, that you can use to easily draw shapes on your worksheets. The Shapes gallery contains over a hundred common shapes and lines, such as stars, arrows, and speech balloons.

Draw a shape

To insert a shape into a worksheet, draw it.

1. Click the **Insert** tab on the Ribbon and click the **Shapes** button in the Illustrations group.

   The Shapes gallery appears. Table 15-2: AutoShape Categories describes the different types of shapes that are available.

2. Click the shape you want to insert.

   Tip: One of the shapes you can enter here is a text box, which allows you to enter text and position the text object anywhere on the worksheet.

   The arrow pointer changes to a cross hair.

3. Click and drag on the worksheet until the shape reaches the desired size.

   Tip: To draw a straight line, perfect square or circle, or to constrain the dimensions of other shapes, press and hold down the **<Shift>** key as you drag.

   The shape is inserted onto the worksheet and the Format contextual tab appears on the Ribbon under Drawing Tools.

Adjust a shape

You can adjust the most prominent feature of a shape—such as the point of an arrow or the spikes on a star—by using its adjustment handle.

1. Click the shape to select it.
2. Click and drag the shape's adjustment handle ( ).
3. Release the mouse button.

   Tip: Some shapes have more than one adjustment handle, while others don't have any at all.

Exercise

- **Exercise File:** Catalog15-4 xlsx
- **Exercise:** Draw a 16-Point Star shape that is about the same size as the other two graphics in an open area of the worksheet. Then, change the shape by dragging its adjustment handle toward the middle of the star.

Table 15-2: AutoShape Categories

Lines	Straight lines, curved lines, scribbly lines, arrows, and free form drawing shapes.
Rectangles	Different styles of rectangles.
Basic Shapes	Squares, triangles, circles, pentagons, and more.
Block Arrows	Arrows that point up, down, left, and right.
Equation Shapes	Plus, minus, division, and equal to signs.
Flowchart	Basic shapes used to create flowcharts.
Stars and Banners	Shapes that boldly announce something.
Callouts	Text box shapes that point to and describe something.

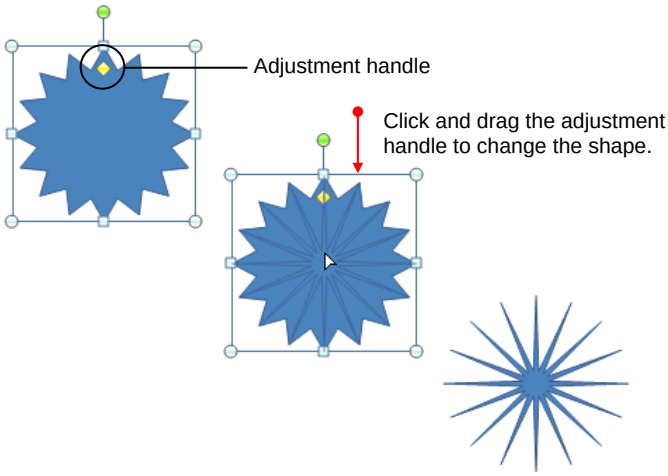


Figure 15-6: Adjusting a shape.

Add text to a shape

Adding text to a shape is extremely easy—just click the shape and start typing.

1. Select the shape you want to add text to and start typing.

   Other Ways to Add Text to a Shape:
   Right-click the shape you want to add text to, select **Edit Text** from the contextual menu, and type your text.

Formatting Shapes

The first thing you'll probably want to do after inserting a shape is change its fill color or outline. This lesson will show you how to format a shape to meet your needs.

Change the fill color of a shape

You can add, adjust, or remove the fill color of the shapes you create in Excel.

1. Double-click the shape whose fill color you wish to change.

   The Format contextual tab appears on the Ribbon under Drawing Tools.

2. Click the **Shape Fill** button in the Shape Styles group.

   The Shape Fill menu appears. You have several options to choose from here, as shown in Table 15-3: The Shape Fill Menu.

3. Select an option from the menu.

   Other Ways to Change the Fill Color of a Shape:
   Right-click the shape and select **Format Shape** from the contextual menu. Click the **Fill** tab, select your options, and click **Close** when you're finished.

Change the outline of a shape

You can add an outline to shapes or adjust or remove an existing outline.

1. Double-click the shape whose outline you wish to change.

   The Format contextual tab appears on the Ribbon under Drawing Tools.

2. Click the **Shape Outline** button in the Shape Styles group.

   The Shape Outline menu appears. You have several options to choose from here, as shown in Table 15-4: The Shape Outline Menu.

3. Select an option from the menu.

   Other Ways to Change the Outline of a Shape:
   Right-click the shape and select **Format Shape** from the contextual menu. Click the **Line Color** or **Line Style** tabs, select your options, and click **Close** when you're finished.

Exercise

- **Exercise File:** Catalog15-5 xlsx
- **Exercise:** Apply a yellow fill color to the star shape.
  Apply an orange outline color to the shape and change the weight of the outline to 3 pt.
  Apply the Intense Effect, Accent 6 shape style.
  Undo the actions of changing the weight of the outline and applying the shape style.

Table 15-3: The Shape Fill Menu

Theme Colors	Lets you select a fill color from the colors in the current theme.
Standard Colors	Lets you select a fill color from one of the 10 standard colors.
No Fill	Removes the fill color.
More Fill Colors	Lets you select a fill color from one of the thousands of colors in the Colors dialog box.
Picture	Fills the shape with a graphic you have on file.
Gradient	Fills the shape with a gradient that gradually changes from one color to another.
Texture	Fills the shape with a texture.

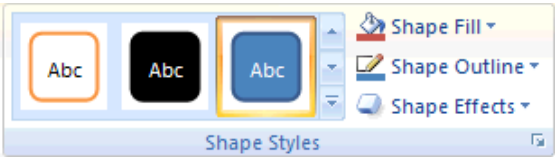


Figure 15-7: The Shape Styles group on the Format tab.

Table 15-4: The Shape Outline Menu

Theme Colors	Lets you select an outline color from the colors in the current theme.
Standard Colors	Lets you select an outline color from one of the 10 standard colors.
No Outline	Removes the outline.
More Outline Colors	Lets you select an outline color from one of the thousands of colors in the Colors dialog box.
Weight	Changes the thickness of an outline.
Dashes	Changes the look of the outline.

Change the visual style of a shape

Changing the visual style of a shape is an easy way to spice up its appearance. A visual style is a set of different formatting commands that can be applied to a shape in one single step.

1. Double-click the shape that you want to adjust.

   The Format contextual tab appears on the Ribbon under Drawing Tools.

2. Select a style from the Shape Styles gallery.

   Tip: To view all the available styles, click the **More** button ( ) in the Shape Styles group to display the Styles gallery.

   The visual style is applied to the shape.

Figure 15-8: The Shape Styles gallery.

Resize, Move, Copy and Delete Objects

This lesson will show you how to resize, move, copy, and delete the shapes and graphics in your workbooks.

Resize an object

Make an object larger or smaller by resizing it.

1. Click the object to select it.

   Sizing handles appear around the object once it is selected. You can use these sizing handles to change the size and proportion of the selected object.

2. Click and drag one of the object's sizing handles.

   Tip: To maintain the object's proportions while resizing, hold down the **<Shift>** key as you drag.

   The object is resized.

Move an object

By simply clicking and dragging with the mouse, you can move an object to a new location on the worksheet.

1. Click and drag the object to a new location.

   The object is moved on the worksheet.

Copy an object

The fastest way to copy an object is by clicking and dragging—simply press and hold the <Ctrl> key as you drag.

1. Click the object to select it.

2. Press and hold down the **<Ctrl>** key, and click and drag the object to a new location.

3. Release the mouse button, and release the **<Ctrl>** key.

   Other Ways to Copy an Object:
   Select the object and copy it. Then paste the object where you want it to be located on the worksheet.

Delete an object

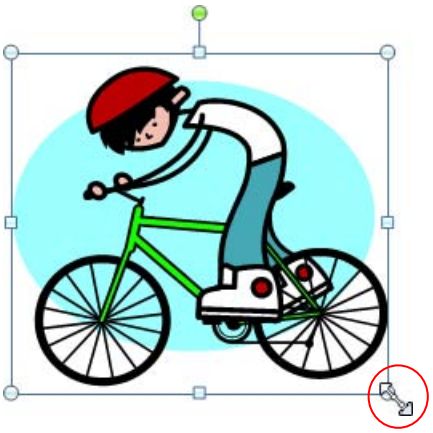
If you decide you don't want an object, delete it.

1. Select the object that you want to delete and press the **<Delete>** key.

   The object is removed from the workbook.

Exercise

- **Exercise File:** Catalog15-6 xlsx
- **Exercise:** Shrink the bike clip art image to half its original size.
  Move the bike clip art image so it is not covering any text.
  Make a duplicate of the Jumper image.
  Delete the duplicate Jumper image.



Click and drag a corner sizing handle to keep the shape proportional.

Figure 15-9: To resize an object, simply click and drag one of its sizing handles.

Applying Special Effects to Objects

New in Excel 2007, you can apply special effects such as reflection, glow, and 3-D rotation to clip art, shapes, and pictures.

1. Double-click the object that you want to apply special effects to.

   The Format contextual tab appears on the Ribbon.

2. Depending on the object, click the **Picture Effects** button in the Picture Styles group or click the **Shape Effects** button in the Shape Styles group.

   A menu of different types of effects appears.

3. Point to the type of effect you want to use, then select an option from the submenu.

   The special effect is applied to the object.

   Tip: As you point to different effects in the submenu, the selected shape changes to show you how it will look with the effect applied (Live Preview).

Exercise

- **Exercise File:** Catalog15-7 xlsx
- **Exercise:** Apply an orange glow effect to the star shape.

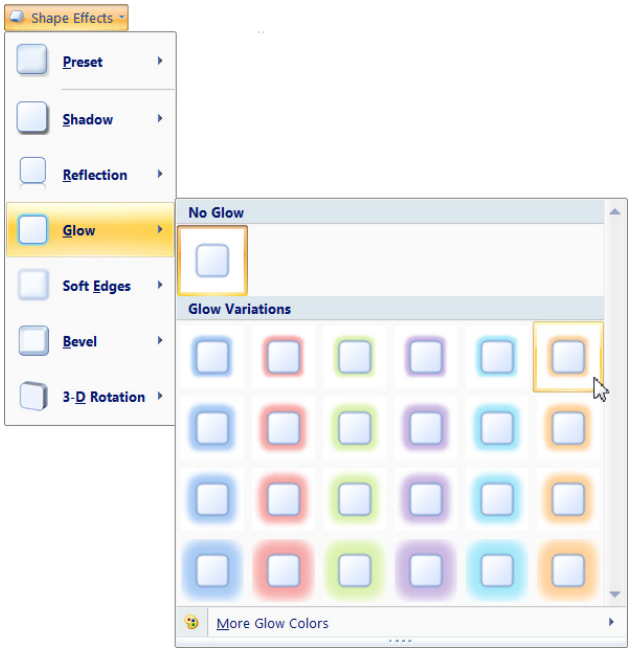


Figure 15-10: Selecting a special effect.

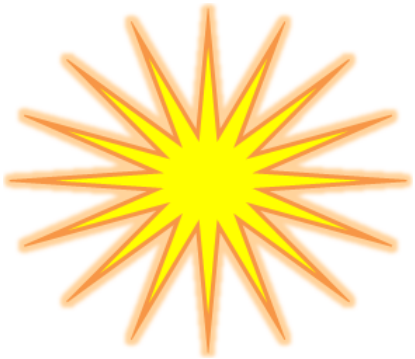


Figure 15-11: A shape with a glow special effect.

Grouping Objects

It is often easier to work with a single object than it is to work with several smaller objects. A *group* is a collection of objects that Excel treats as a single object.

Select multiple objects

Before you can group multiple objects, you must select them first.

1. Press and hold down the **<Shift>** key as you click each object that you want to select.

Group objects

By grouping several objects together you can format an entire group of objects rather than formatting each object individually.

1. Select the objects that you want to group and click the **Format** contextual tab on the Ribbon.

2. Click the **Group** button in the Arrange group, and select **Group** from the list.

   Other Ways to Group Objects:
   Select the objects that you want to group. Then, right-click one of the selected objects, point to **Group** in the contextual menu, and select **Group**.

Ungroup objects

If you need to make changes to an object that is part of a group, you'll need to ungroup the objects before continuing.

1. Select the group of objects that you want to ungroup and click the **Format** contextual tab on the Ribbon.

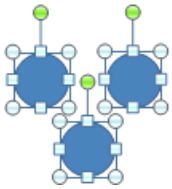
2. Click the **Group** button in the Arrange group, and select **Ungroup** from the menu.

   The selected objects are ungrouped. Now you can work with each object individually.

   Other Ways to Ungroup Objects:
   Right-click the group of objects that you want to ungroup, point to **Group** in the contextual menu, and select **Ungroup**.

Exercise

- **Exercise File:** Catalog15-8 xlsx
- **Exercise:** Display the Wheels worksheet and group the three images. Then ungroup them.



Select multiple objects by holding down the <Shift> key as you click each object.

Figure 15-12: Selecting multiple objects.

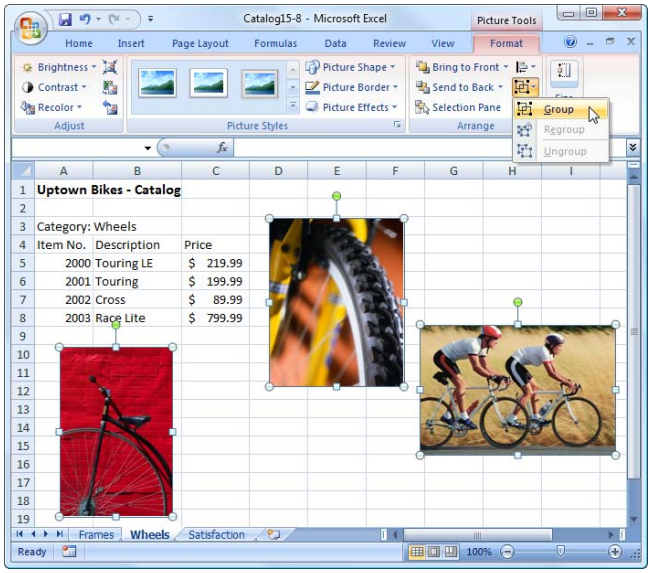


Figure 15-13: You can also use the contextual menu to group and ungroup objects.

Aligning Objects

This lesson will show you how to use the Align and Distribute features to organize the objects on your worksheets.

Align objects

The Align command aligns objects relative to one another.

1. Select all the objects that you want to align.
2. Click the **Format** contextual tab on the Ribbon and click the **Align** button in the Arrange group.

   A menu of alignment options appears.
3. Select an alignment option from the menu.

   The selected objects are aligned accordingly.

Distribute objects

The Distribute command spaces out selected objects equally.

1. Select all the objects that you want to distribute.
2. Click the **Format** contextual tab on the Ribbon and click the **Align** button in the Arrange group.
3. Select either **Distribute Horizontally** or **Distribute Vertically** from the list.

   The selected objects are distributed so that equal space appears between each object.

Exercise

- **Exercise File:** Catalog15-9 xlsx
- **Exercise:** Display the Wheels worksheet and align the images with the bottom-most image. Then, distribute the objects horizontally.

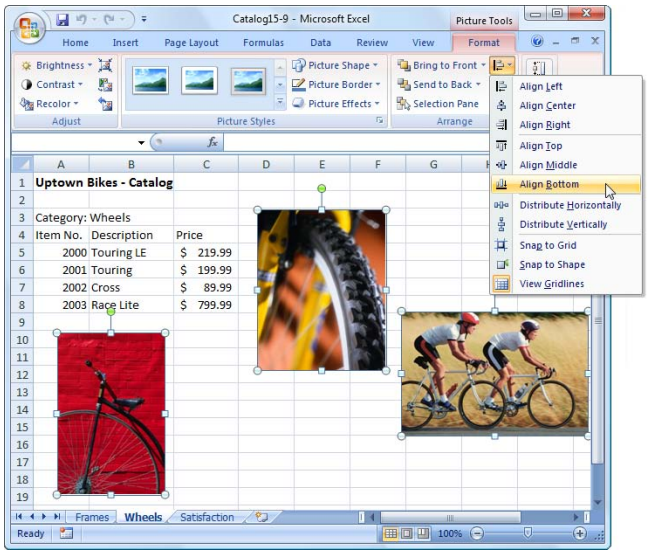


Figure 15-14: Selecting an alignment option.

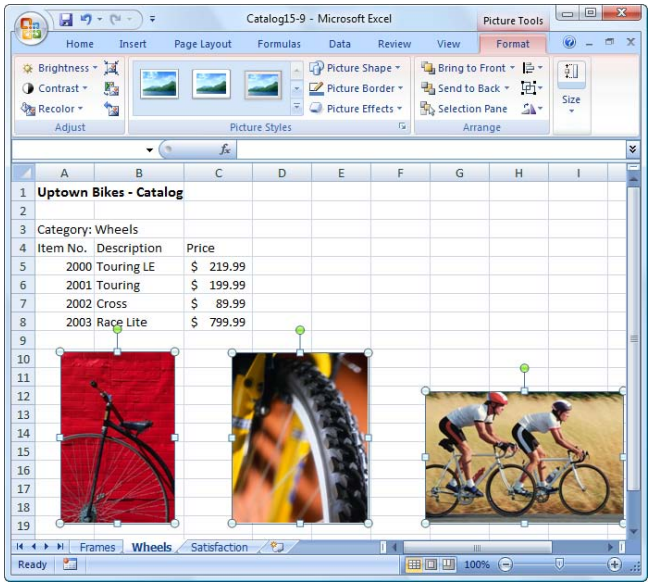


Figure 15-15: An example of objects that have been aligned to the bottom edge and distributed horizontally.

Flipping and Rotating Objects

When you flip an object, you create a mirror image of it. Excel allows you to flip an object horizontally or vertically. You can also rotate objects.

Flip an object

1. Double-click the object that you want to flip.

   The Format contextual tab appears on the Ribbon.

2. Click the **Rotate** button in the Arrange group.

3. Select **Flip Vertical** or **Flip Horizontal** from the list.

   The object is flipped accordingly.

Rotate an object

When you rotate an object, you turn it around its center. You can rotate objects in 90-degree increments or you can use the rotation handle to rotate an object manually.

1. Select the object that you want to rotate.

   A green rotation handle (●) appears.

2. Click and drag the object's **rotation handle**.

   Excel rotates the selected object.

   Other Ways to Rotate an Object:
   Double-click the object that you want to rotate, click the **Rotate** button in the Arrange group, and select **Rotate Right 90°** or **Rotate Left 90°** from the menu.

Use the Size and Properties dialog box

Using an object's rotation handle is the fastest and easiest way to rotate an object, but you can rotate an object with greater precision using the Size and Properties dialog box.

1. Double-click the object that you want to rotate.

   The Format contextual tab appears on the Ribbon.

2. Click the **Rotate** button in the Arrange group and select **More Rotation Options** from the list.

   The Size and Properties dialog box appears.

3. Enter the number of degrees you want to rotate the object in the **Rotation** box and then click **Close**.

   The object is rotated accordingly.

Exercise

- **Exercise File:** Catalog15-10 xlsx
- **Exercise:** Display the Frames worksheet and flip the bike clip art image horizontally. Then, rotate the image about 45 degrees to the left so the rider looks like he's doing a wheelie on his back wheel.

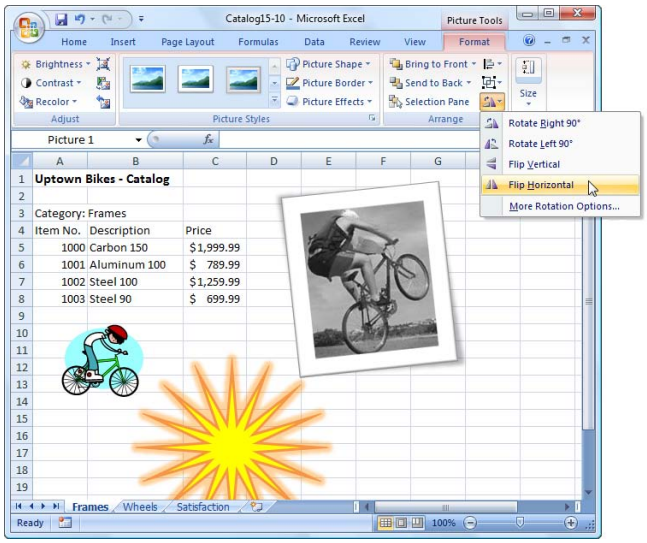


Figure 15-16: Flipping an object.

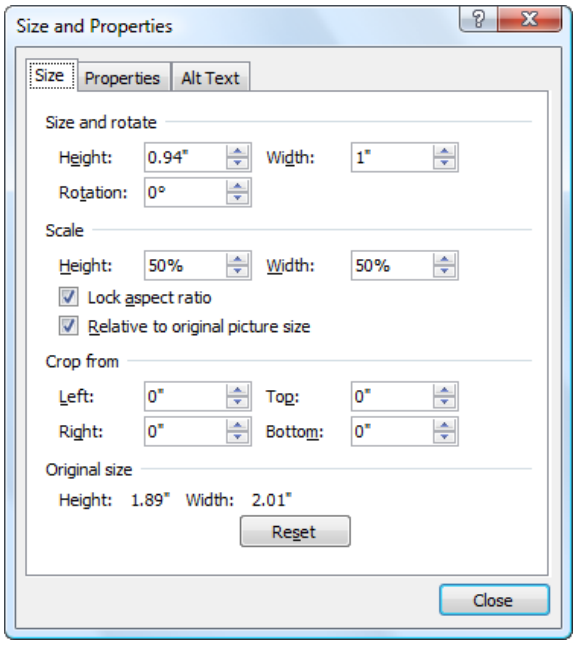


Figure 15-17: The Size and Properties dialog box.

Layering Objects

By default, the first object that you insert on a worksheet is assigned to the bottom layer of the page. Each object that you insert thereafter is assigned one level above, and so on. The final object that you insert will appear on the topmost layer.

There are four layering commands in Microsoft Excel:

- **Bring to Front:** Places the selected object on the very top layer of the page. All other objects will appear *behind* the selected object.
- **Send to Back:** Places the selected object on the very bottom layer of the page. All other objects will appear *in front of* the selected object.
- **Bring Forward:** Brings the selected object up one layer.
- **Send Backward:** Sends the selected object down one layer.

1. Double-click the object that you want to layer.

The Format contextual tab appears on the Ribbon.

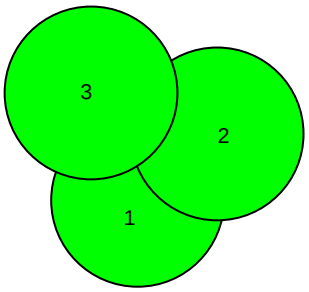
2. Click the **Bring to Front** or **Send to Back** button in the Arrange group, or click the **Bring to Front** or **Send to Back** button list arrow and select an option from the list.

The object is layered accordingly.

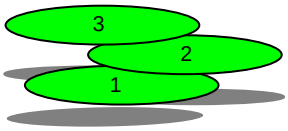
Other Ways to Layer an Object:
Right-click the object that you want to layer, point to **Bring to Front** or **Send to Back** in the contextual menu, and select an option from the submenu. Or, double-click the object that you want to layer, click the **Selection Pane** button in the Arrange group and adjust layering.

Exercise

- **Exercise File:** Catalog15-11.xlsx
- **Exercise:** Send the star shape to the back and move it behind the bike clip art image.



Layered objects, as they appear onscreen.



Layered objects are simply stacked on top of one another, like sheets of paper.

Figure 15-18: Layered objects.

	A	B	C
1	**Uptown Bikes - Catalog**		
2			
3	Category: Frames		
4	Item No.	Description	Price
5	1000	Carbon 150	$1,999.99
6	1001	Aluminum 100	$ 789.99
7	1002	Steel 100	$1,259.99
8	1003	Steel 90	$ 699.99
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Figure 15-19: An example of layered objects.

Inserting SmartArt

New in Excel 2007, the SmartArt feature lets you create and customize designer-quality diagrams.

Insert a SmartArt graphic

1. Click the **Insert** tab on the Ribbon and click the **SmartArt** button in the Illustrations group.

   The Choose a SmartArt Graphic dialog box appears. Table 15-5: Types of SmartArt Graphics describes the types of graphics that are available.

2. Select a graphic type from the left-hand list, then select a sub-type from the right. Click **OK**.

   The SmartArt object is inserted onto the worksheet.

Add text to a SmartArt graphic

There are two ways to add text to a SmartArt graphic: using the Text pane or the graphic itself.

1. Click the **[Text]** placeholder where you want to insert your text.

   A blinking cursor appears, indicating that you can type your text.

2. Start typing.

   Other Ways to Add Text to SmartArt:
   Click a bullet in the Text pane and type your text. If the Text pane is not visible, select the SmartArt graphic and click the **Design** tab on the Ribbon under SmartArt Tools. Click the **Text Pane** button in the Create Graphic group.

Tips

- ✓ In the Text pane, use the **up** or **down** arrow keys on your keyboard to move between placeholders.
- ✓ To add an additional placeholder, press **<Enter>** in the Text pane.

Exercise

- **Exercise File:** Catalog15-12 xlsx
- **Exercise:** Display the Satisfaction worksheet, insert the "Basic Cycle" SmartArt graphic and enter the following text into the five placeholders: Friendly service, Low cost, High quality, Best fit, Lifetime guarantee.

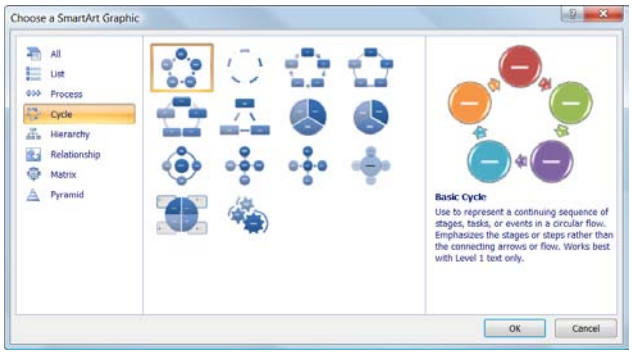


Figure 15-20: The Choose a SmartArt Graphic dialog box.

Table 15-5: Types of SmartArt Graphics

List	Show non-sequential information.
Process	Show steps in a process or timeline.
Cycle	Show a continual process.
Hierarchy	Create an organization chart or decision tree.
Relationship	Illustrate connections.
Matrix	Show how parts relate to a whole.
Pyramid	Show proportional relationships with the largest component on the top or bottom.

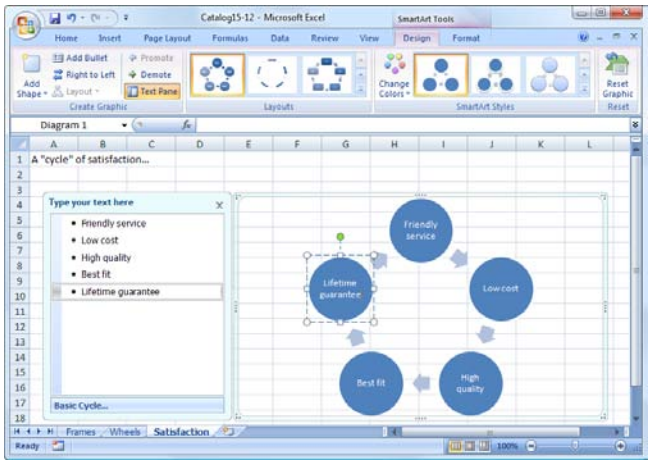


Figure 15-21: An example of a SmartArt graphic.

Working with SmartArt Elements

In order to create an effective SmartArt graphic, you need to know how to work with its elements. This includes adding new shapes, replacing shapes with different ones, or removing those you don't need. This lesson will show you how to do all of this and more.

Exercise

- **Exercise File:** Catalog15-13 xlsx
- **Exercise:** Display the Satisfaction worksheet tab, select the SmartArt graphic, and select the "Friendly service" shape. Add a shape after it and enter the text "Best staff". Select the "Friendly service" shape and change its shape to a 7-Point Star. Select the "Best fit" shape and remove it.

Add a shape

Adding shapes to a SmartArt graphic is extremely easy.

1. Select the SmartArt graphic that you want to add a shape to.
2. Select the shape that is closest to where you want to add the new shape.
3. Click the **Design** tab on the Ribbon under SmartArt Tools, and click the **Add Shape** button list arrow in the Create Graphic group.

   A list of location options appears.
4. Select a location from the list.

   The new shape is inserted in the location specified.

Other Ways to Add a Shape:
In the Text pane, place your cursor at the beginning or end of an existing shape's text. Press **<Enter>**.

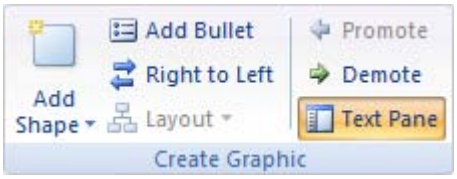


Figure 15-22: The Create Graphic group.

Replace a shape

You can also replace a shape with a different one.

1. Select the SmartArt graphic containing the shape that you want to replace.
2. Select the shape that you want to replace, and click the **Format** tab on the Ribbon under SmartArt Tools.
3. Click the **Change Shape** button in the Shapes group.

   The Shapes Gallery appears.
4. Select a shape from the gallery.

   The existing shape is replaced.

Figure 15-23: The Shapes group.

Remove a shape

It's easy to remove a shape if you don't want it.

1. Select the SmartArt graphic containing the shape you want to remove.

2. Select the shape you want to remove and press the **<Delete>** key.

   The shape is removed from the SmartArt graphic.

Tips

- ✓ To resize a shape, click and drag one of its sizing handles.
- ✓ To move a shape, simply click and drag the shape to a new location within the SmartArt graphic's frame.

Formatting SmartArt

Excel 2007 has a variety of SmartArt layouts and styles that allow you to format your SmartArt graphics with the click of a button.

Change layouts

If you find that the layout you selected isn't the best fit for your data, you can easily switch to a different layout.

1. Select the SmartArt graphic and click the **Design** tab on the Ribbon under SmartArt Tools.
2. Select a layout from the Layouts group.

   The selected layout is applied.

   Tip: To view more layouts, click the **More** button (▾) in the Layouts group; click **More Layouts** to display the SmartArt Graphic dialog box.

   Other Ways to Change Layouts: Right-click the SmartArt graphic and select **Change Layout** from the contextual menu. Select a new layout and click **OK**.

Change colors

If you don't like the color that has been assigned to your SmartArt graphic by default, change it.

1. Select the SmartArt graphic and click the **Design** tab on the Ribbon under SmartArt Tools.
2. Click the **Change Colors** button in the SmartArt Styles group.

   The Color Gallery appears.
3. Select the color variation that you want to use.

   Excel updates the SmartArt graphic accordingly.

Change styles

Changing the style of a SmartArt graphic is an easy way to spice up its appearance. A style is a set of formatting commands that can be applied to the graphic in one step.

1. Select the SmartArt graphic and click the **Design** tab on the Ribbon under SmartArt Tools.
2. Select a style from the SmartArt Styles gallery.

   The selected style is applied.

   Tip: To view all the available styles, click the **More** button (▾) in the SmartArt Styles group.

Exercise

- **Exercise File:** Catalog15-14 xlsx
- **Exercise:** Display the Satisfaction worksheet tab and change the layout of the SmartArt graphic to Block Cycle layout.
  Change the graphic's color to the Colorful – Accent Colors option in the color gallery.
  Change the graphic's style to the Polished style in the 3-D section of the styles gallery.

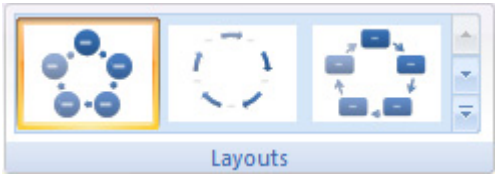


Figure 15-24: The Layouts group.

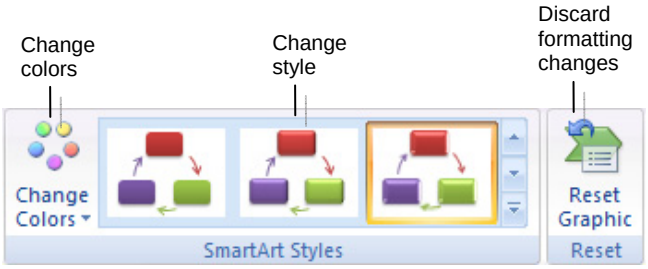


Figure 15-25: The SmartArt Styles and Reset groups.

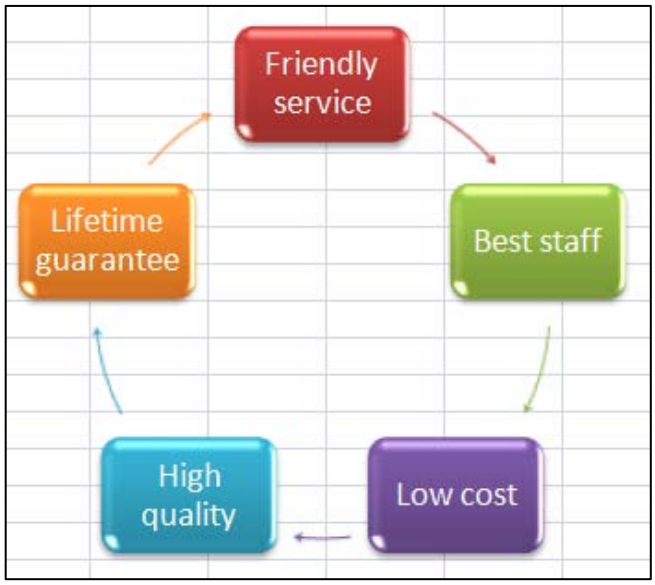


Figure 15-26: An example of SmartArt with modified layout, colors, and style.

Discard all formatting changes

Sometimes you might find yourself wanting to start all over with a SmartArt graphic. When this happens, you can easily restore the default formatting of the graphic using the Reset Graphic command.

1. Select the SmartArt graphic and click the **Design** tab on the Ribbon under SmartArt Tools.

2. Click the **Reset Graphic** button in the Reset group.

   The graphic is restored to its original state.

   Tip: To restore defaults for only one shape, right-click the shape and select **Reset Shape** from the contextual menu.

Using WordArt

Using Excel's WordArt feature is the fastest and easiest way to add dramatic and colorful worksheet text.

Insert WordArt

1. Click the **Insert** tab on the Ribbon and click the **WordArt** button in the Text group.

   The WordArt Styles gallery appears.

2. Select a WordArt style from the gallery.

   A text box formatted using the WordArt style you selected appears on the worksheet.

3. Type your text.

Modify WordArt

You can also modify WordArt once it has been inserted. For example, you can change the text fill and outline color, choose a new WordArt style, or apply a cool text effect.

1. Select the WordArt that you want to format and click the **Format** contextual tab on the Ribbon.

2. Use the commands found in the WordArt Styles group.

   Tip: You might notice a little purple diamond (◆) next to some WordArt objects. This is called an *adjustment handle*, and it is used to change the angle at which some WordArt effects slant or loop. Simply click and drag this adjustment handle to adjust the effect.

Clear WordArt

If you decide you don't like the WordArt effect(s) you applied, you can clear the effects and start over.

1. Select the text formatted with the WordArt effect(s) you wish to remove.

2. Click the **Format** contextual tab on the Ribbon, click the **More** button in the WordArt Styles gallery, and select **Clear WordArt** from the menu.

   Tip: Click the **Quick Styles** button in the WordArt Styles group if the WordArt Styles gallery isn't displayed.

Tips

- ✓ You can resize, move, copy and delete WordArt just as you would any other object on a worksheet.

Exercise

- **Exercise File:** Catalog15-15 xlsx
- **Exercise:** Display the Satisfaction worksheet tab. Insert any WordArt style, and type "Uptown Bikes" in the text box that appears.
  Apply the Arch Up text effect in the Transform category.
  Select the text and change the font size to 20 using regular font formatting commands.
  Move the text box to the top of the worksheet and center it over the SmartArt graphic.

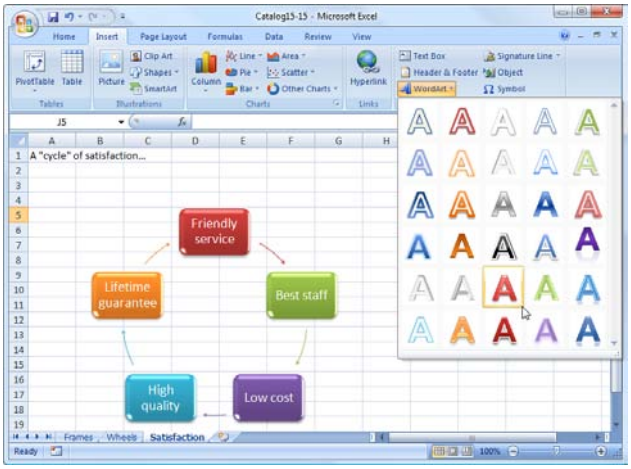


Figure 15-27: Selecting a style from the WordArt Styles gallery.

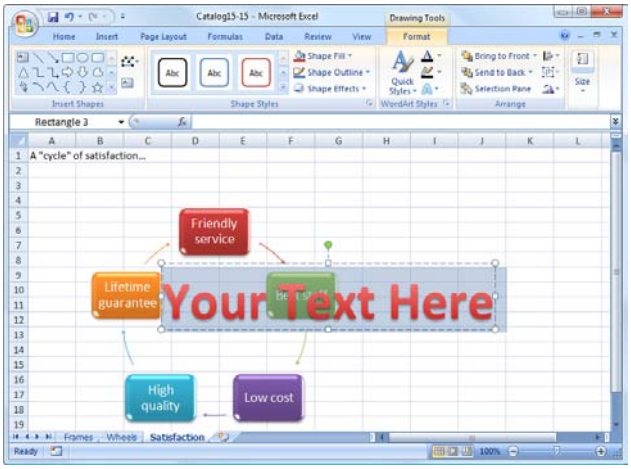


Figure 15-28: As soon as WordArt has been inserted, the Format tab appears on the Ribbon under Drawing Tools. You can use the commands on this tab to modify WordArt.

Inserting an Embedded Object

You can include content from other programs by inserting them as objects in Excel. For example, you can embed a PowerPoint presentation in an Excel worksheet, and then edit it within Excel using PowerPoint commands.

1. Click the **Insert** tab on the Ribbon and click the **Object** button in the Text group.

   The Object dialog box appears. Choose a tab depending on the type of object you want to insert:

   - **Create New:** Select this tab to insert a blank new object. Select the type of object you want to insert and click **OK**.
   - **Create from File:** Select this tab to insert a file that has already been created. Click the **Browse** button to navigate to the file you want to insert. Click the **Link to file** check box to link the object to the file. Changes to the file will be included in the object in Excel.

2. Select a the tab for the type of object you want to insert. Select the object type or file and click **OK**.

   Excel inserts a new object of the selected type, or inserts the selected file.

   The tabs on the Ribbon change to provide you with the commands available in the program of the embedded object. For example, if you inserted a PowerPoint presentation object, you'd see tabs that you normally find in the PowerPoint program.

3. Edit the object using the available commands.

   Tip: To delete an embedded object, select it and press **<Delete>**.

Exercise

- **Exercise File:** Catalog15-16 xlsx,
- **Exercise:** Display the Satisfaction worksheet and insert a PowerPoint presentation object.
  Click the Design, Animations, Slide Show, and View tabs to see the PowerPoint commands that are available, then delete the PowerPoint object.

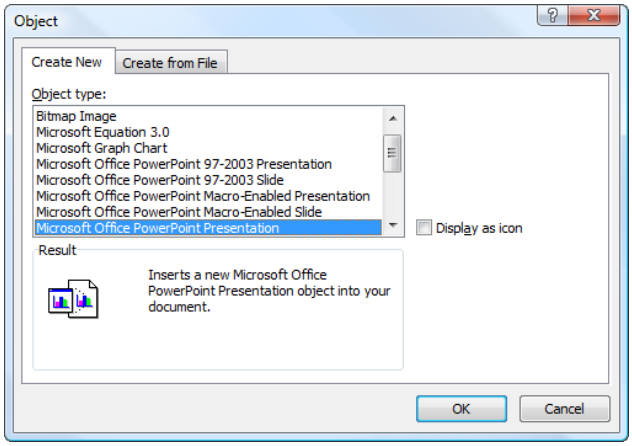


Figure 15-29: The Create New tab of the Object dialog box.

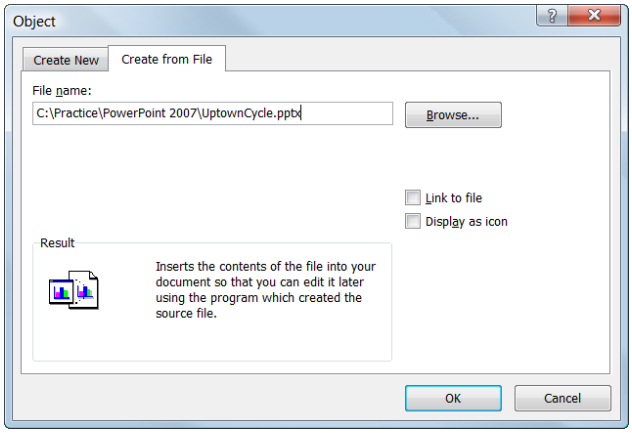


Figure 15-30: The Create from File tab of the Object dialog box.

Inserting Symbols

You can enter many more characters and symbols in a worksheet than can be found on the keyboard. For example, you can insert the copyright symbol (©), accented and foreign characters (ç), silly characters (☺), and many more.

1. Place the insertion point where you want to insert the symbol or character.

   For example, you can place the insertion point inside a cell or inside a text box.

2. Click the **Insert** tab on the Ribbon and click the **Symbol** button in the Text group.

   The Symbol dialog box appears. You can browse the different symbols by changing the Font and Subset. Special characters such as ellipses are available under the Special Characters tab.

3. Select the symbol you want to use and click **Insert**.

Exercise

- **Exercise File:** Catalog15-17 xlsx
- **Exercise:** Insert the ® symbol after "Uptown Bikes" on all three worksheet tabs.

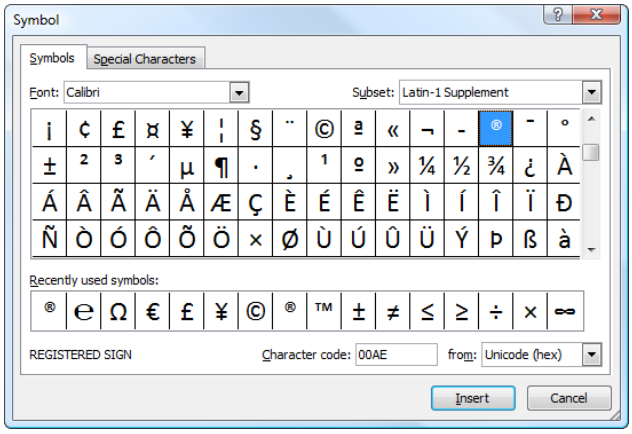


Figure 15-31: The Symbol dialog box.

16

Advanced Topics

Customizing the Quick Access Toolbar 238
- Add commands to the Quick Access Toolbar 238
- Move the Quick Access Toolbar below the Ribbon 239

Using and Customizing AutoCorrect..... 240
- How AutoCorrect works 240
- Create an AutoCorrect entry..... 240

Changing Excel's Default Options..... 242

Recovering Your Documents..... 243
- Understand how AutoRecover works 243
- Change AutoRecovery settings 244

Using Microsoft Office Diagnostics..... 245

Viewing Document Properties and Finding a File..... 246
- View document properties 246
- Find a file 246

Saving a Document as PDF or XPS 247
- Download add-in..... 247
- Save to PDF or XPS 247

Adding a Digital Signature to a Document ... 249

Preparing Documents for Publishing and Distribution 250
- Prepare a document for distribution 250

Publishing a Workbook to a Document Workspace..... 251

Creating a Custom AutoFill List..... 252

Creating a Custom Number Format..... 253

This chapter explains how to tailor Excel to work the way you do. In this chapter, you will get to customize many of Excel's settings through Excel Options.

First, learn how to customize the Quick Access Toolbar and work with AutoCorrect. Add the commands you use most often so they are readily available on the Quick Access Toolbar above the Ribbon. AutoCorrect is the feature that instantly corrects common spelling and typing errors, such as changing "teh" to "the."

You'll also learn more about how to customize Excel by changing its default options, viewing workbook properties, finding a workbook on your computer, recovering workbooks when Excel crashes, and repairing Excel when it does not work properly.

Customizing the Quick Access Toolbar

The Quick Access Toolbar is a shortcut for commands that are used most often. You can customize it to fit your working style better.

Add commands to the Quick Access Toolbar

The purpose of the Quick Access Toolbar is to provide buttons for the commands you use most frequently. If the Quick Access Toolbar doesn't contain enough of your frequently used commands, you can customize it by adding or deleting its buttons.

1. Click the **Office Button** and click **Excel Options**.

   The Excel Options dialog box appears.

2. Click the **Customize** tab.

   This tab displays options for customizing the Quick Access Toolbar. The left side displays commands you can add to the Quick Access Toolbar. The right side displays commands that appear there.

3. Click the **Choose commands from** list arrow and select the group of commands you want to view.

   Each group has a different set of commands to display. Some commands appear in several groups. Once the command you want to add to the Quick Access Toolbar appears, you can add it to the toolbar.

4. Select the command you want to add to the Quick Access Toolbar.

5. Click the **Add** button.

   The command is added to the list of commands in the Quick Access Toolbar.

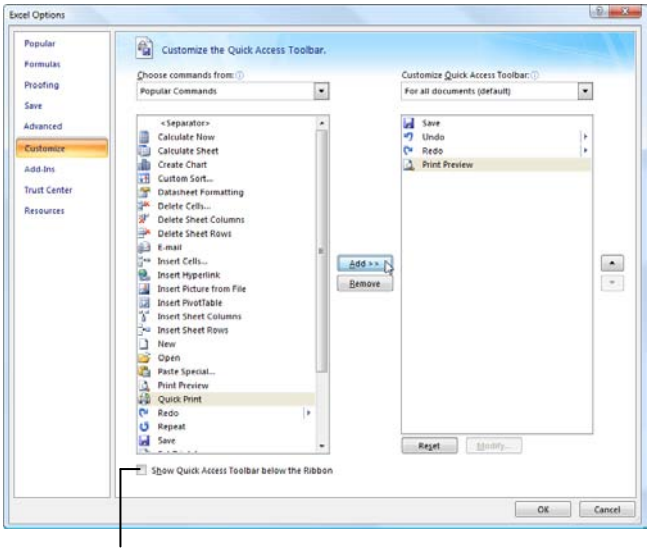
   - **Tip:** Arrange the order in which the commands on the Quick Access Toolbar are displayed by clicking the **Move Up** and **Move Down** buttons to the right of the column.
   - **Tip:** Click the **Reset** button to return the Quick Access Toolbar to its default commands.
   - **Tip:** Select a command in the Quick Access Toolbar column and click the **Remove** button to remove it from the Quick Access Toolbar.

6. Click **OK**.

   The new commands are displayed on the Quick Access Toolbar.

Exercise

- **Exercise File:** None required.
- **Exercise:** Add the Print Preview command from the Popular Commands group to the Quick Access Toolbar. Move the Quick Access Toolbar below the Ribbon.



Click this option to move the location of the Quick Access Toolbar.

Figure 16-1: Adding a command to the Quick Access Toolbar.

Move the Quick Access Toolbar below the Ribbon

The Quick Access Toolbar is displayed above the Ribbon by default, but you can move it below the Ribbon as well.

1. Click the **Office Button** and click **Excel Options**.

   The Excel Options dialog box appears.

2. Click the **Customize** tab.

   This tab displays options for customizing the Quick Access Toolbar.

3. Click the **Show Quick Access Toolbar below the Ribbon** check box.

4. Click **OK**.

   The Quick Access Toolbar is shown below the Ribbon.

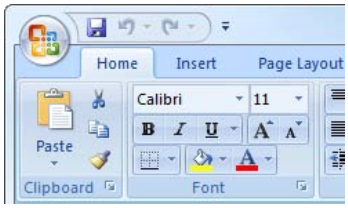


Figure 16-2: The Quick Access Toolbar above the Ribbon.

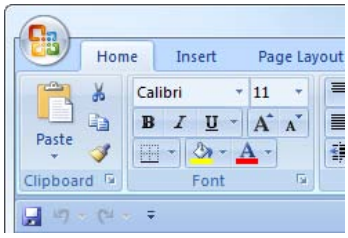


Figure 16-3: The Quick Access Toolbar below the Ribbon.

Using and Customizing AutoCorrect

AutoCorrect automatically corrects many common typing and spelling errors as you type. It is also a great way to use shorthand for longer words, phrases, or symbols.

AutoCorrect is a feature that is shared across the Microsoft Office suite—so any additions or changes you make to AutoCorrect in one program, such as Excel, will appear in all the Microsoft Office programs, like Word.

How AutoCorrect works

You may have already noticed that sometimes your typos are corrected as you enter text in Excel. When you type an AutoCorrect entry and then press the <Spacebar>, AutoCorrect replaces that text with the correct text.

For example, AutoCorrect will change the mistyped words “hte” to “the”, or “adn” to “and”. AutoCorrect also corrects simple grammar mistakes, such as capitalization problems. For example, it would change “GOing” to “Going” or capitalize the first letter in sentences.

Create an AutoCorrect entry

Excel already has many entries in AutoCorrect, but you can add your own entries to correct habitual misspellings, quickly insert a symbol, or insert a shorthand version of a long phrase that you frequently use.

1. Click the **Office Button** and click **Excel Options**.

   The Excel Options dialog box appears.

2. Click the **Proofing** tab.

   This tab displays options for how Excel corrects and formats your text.

3. Click the **AutoCorrect Options** button.

   The AutoCorrect dialog box appears with the AutoCorrect tab displayed. You can change how AutoCorrect works and add, change, or remove the AutoCorrect entries.

4. Type the word or phrase you want to correct or use as shorthand in the **Replace** text box.

   This is the text that AutoCorrect will recognize when you type.

5. Type the word or phrase you want to appear in the **With** text box.

   When the text in the “Replace” text box is typed with a space, the text in the “With” text box will appear.

Exercise

- **Exercise File:** None required.
- **Exercise:** Create an AutoCorrect entry that replaces “ot” with “to”. Try the AutoCorrect entry by typing this phrase in a cell: “He was going ot the store.”

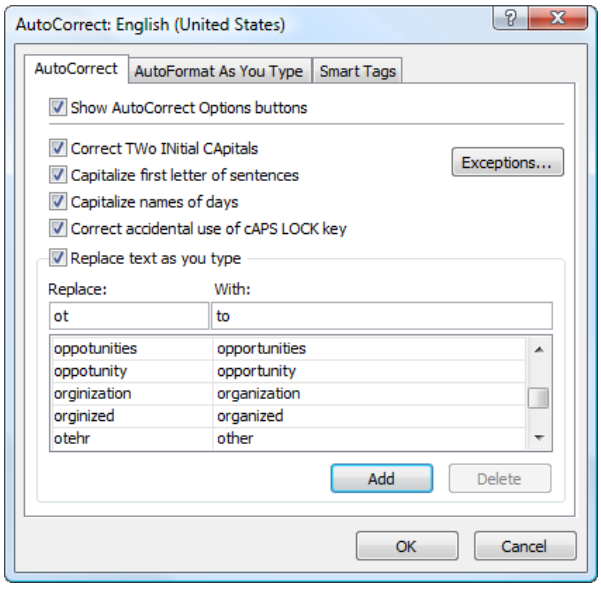


Figure 16-4: The AutoCorrect tab of the AutoCorrect dialog box.

6. Click **Add**.

   The entry is added to the AutoCorrect list.

7. Click **OK** to close the AutoCorrect dialog box. Click **OK** to close the Excel Options dialog box.

   The dialog boxes close and the entry will now be available in all Excel workbooks, and also in all other Office applications.

Changing Excel's Default Options

Microsoft spent a lot of time and research when it decided on default settings for Excel. However, you may find that the default settings don't always fit your own needs.

This lesson isn't so much an exercise as it is a reference on how to customize Excel by changing its default settings.

1. Click the **Office Button** and click **Excel Options**.

   The Excel Options dialog box appears.

2. Click the tabs on the left to view different option categories.

   See Table 16-1: Tabs in the Excel Options Dialog Box for more information on these categories.

3. Change the options as you see fit. Click **OK** to confirm the changes.

   The changes are applied to the Excel program.

Exercise

- **Exercise File:** None required.
- **Exercise:** Explore the tabs in the Excel Options dialog box.

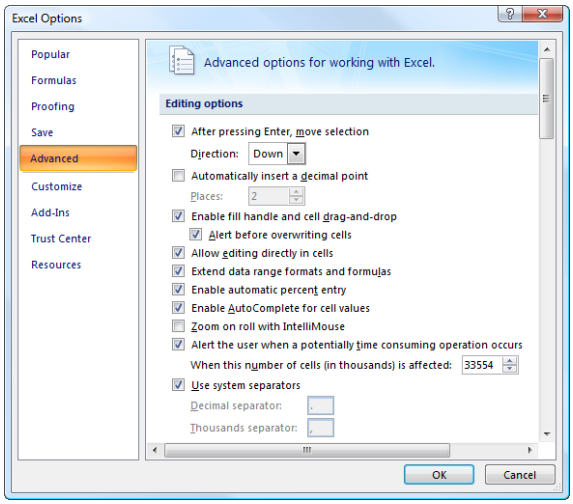


Figure 16-5: The Advanced tab of the Excel Options dialog box contains the most options for customizing Excel.

Table 16-1: Tabs in the Excel Options Dialog Box

Popular	Change the most popular options in Excel. This includes enabling the Mini toolbar, Live Preview, and the Developer tab. Also, change the color scheme, control ScreenTips, and change the user name and language settings.
Formulas	Change when formulas are calculated in your workbooks, as well as if you want to use options like AutoComplete to complete your formulas for you as you begin to enter them, and how you want Excel to check for errors.
Proofing	Change how Excel corrects and formats your text. Change what types of errors Excel flags when looking for spelling and grammar errors.
Save	Customize how workbooks are saved, such as how often AutoRecover saves a workbook, and change default file locations.
Advanced	Advanced options for working with Excel. Change how Excel works when you edit text; modify how cut, copy, and paste commands operate; control what Excel displays in a workbook, such as the formula bar and function ScreenTips; customize tools in the window, such as how it displays sheet tabs and scroll bars; and control general options such as how to update automatic links.
Customize	Add commands to the Quick Access Toolbar and change or add keyboard shortcuts for commands in Excel.
Add-Ins	View and manage Microsoft Office add-ins, such as custom XML data.
Trust Center	Help keep your workbooks safe and your computer secure and healthy. Read privacy statements and change Trust Center Settings to control how Excel works with macros, add-ins, the message bar, trusted publishers and locations, and more.
Resources	Contact Microsoft, find updates and online resources, and maintain the health and reliability of your Microsoft Office programs.

Recovering Your Documents

Computers don't always work the way they're supposed to. Nothing is more frustrating than when a program, for no apparent reason, decides to take a quick nap, locks up, and stops responding to your commands—especially if you lose the precious document that you're working on!

Fortunately, Microsoft realizes that people might want to recover their documents when Microsoft Excel locks up or stops responding. If Excel 2007 encounters a problem and stops responding, you can restart Microsoft Excel your computer and try to recover your lost documents. Sometimes Excel will display a dialog box telling you that Excel has stopped working and automatically restart itself.

Understand how AutoRecover works

If AutoRecover is enabled in Excel, you don't have to do anything to make it work. When Excel suddenly crashes, Excel automatically restarts and returns as close as it can to the state of the program as it was. For example, if you had several workbooks open, Excel would try to reopen all the workbooks to the same window size and status before the crash.

1. Restart Microsoft Excel (if it doesn't restart by itself).

   In a majority of cases, Excel will restart on its own.

2. Select the best-recovered document in the Document Recovery task pane.

   Sometimes Excel will display several recovered documents in the Document Recovery task pane, such as the original document that was based on the last manual save, and a recovered document that was automatically saved during an AutoRecover save process. You can see the status of any recovered document by simply pointing at the recovered document for a second or two.

   See Table 16-2: Status Indicators in the Document Recovery task pane for an overview of status indicators.

3. Click **Close** to close the task pane.

   You can resume working with the workbook(s).

Exercise

- **Exercise File:** None required.
- **Exercise:** Understand how AutoRecover works. Change the AutoRecover save interval to 8 minutes.

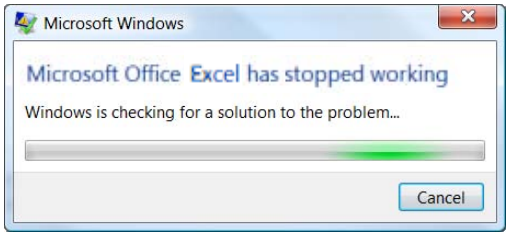

Microsoft Windows
Microsoft Office Excel has stopped working
Windows is checking for a solution to the problem...
Cancel

Figure 16-6: This dialog box appears before Excel closes abnormally (crashes).

Table 16-2: Status Indicators in the Document Recovery task pane

Original	Original file based on last manual save.
AutoSaved	File recovered during recovery process or file saved during an AutoRecover save process.
Repaired	Excel encountered problems while recovering the document and has attempted to repair them.

Change AutoRecovery settings

You can further protect your work by using the AutoRecover feature to periodically save a temporary copy of the workbook you're working on. To recover work after a power failure or similar problem, you must have turned on the AutoRecover feature before the problem occurred. You can set the AutoRecover save interval to occur more frequently than every 10 minutes (its default setting). For example, if you set it to save every 5 minutes, you'll recover more information than if you set it to save every 10 minutes. Here's how to change the AutoRecover save interval…

1. Click the **Office Button** and click **Excel Options**.

   The Excel Options dialog box appears.

2. Click the **Save** tab.

   Options for how to customize save settings appears.

3. Ensure that the **Save AutoRecover information every** check box is checked and specify the desired interval, in minutes, in the minutes box.

   You can't specify the interval if the check box is not selected.

4. Click **OK** when you're finished.

   Now Excel will automatically save a copy of the workbook at regular intervals as you use Excel.

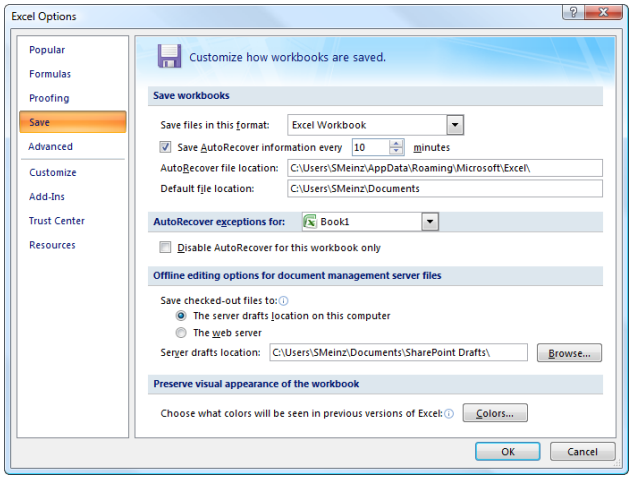


Figure 16-7: The AutoRecover options are located in the Save tab of the Excel Options dialog box.

Tips

- ✓ Even with Excel's document recovery features, the best way to ensure that you don't lose much information if your computer freezes up is to save your work regularly.

Using Microsoft Office Diagnostics

It's a sad fact of life. The more complicated programs get, the less stable they seem to be. Programs sometimes become corrupted and have to be reinstalled in order to make them work correctly again. Fortunately, Microsoft has made this process relatively painless with the Office Diagnostics feature. Diagnostics runs a series of tests that can help you discover why your computer is not working properly. The results of these tests might solve some problems directly and identify other ways you can solve problems.

Should your installation of Microsoft Excel become corrupted or buggy, this lesson explains how you can use Office Diagnostics to fix the problem.

1. Click the **Office Button** and select **Excel Options**.

The Excel Options dialog box appears.

2. Click the **Resources** tab.

A slew of resources you can use to assist with Microsoft Office programs are displayed.

3. Click **Diagnose**.

The Microsoft Office dialog box appears with information about running diagnostic tests on your computer.

4. Click **Continue**.

The next screen for diagnostics appears.

5. Click **Start Diagnostics**.

A thorough inspection of your Office programs is undertaken, and any required fixes are performed.

Other Ways to Run Office Diagnostics:
Click the **Start** button and select **All Programs** → **Microsoft Office** → **Microsoft Office Tools** → **Microsoft Office Diagnostics** from the menu.

Tips

✓ In earlier versions of Office, this feature was called Detect and Repair. This new tool provides more comprehensive testing and repair capabilities.

Exercise

- **Exercise File:** None required.
- **Exercise:** Run Office Diagnostics to see if there are any problems with Microsoft Office on your computer.

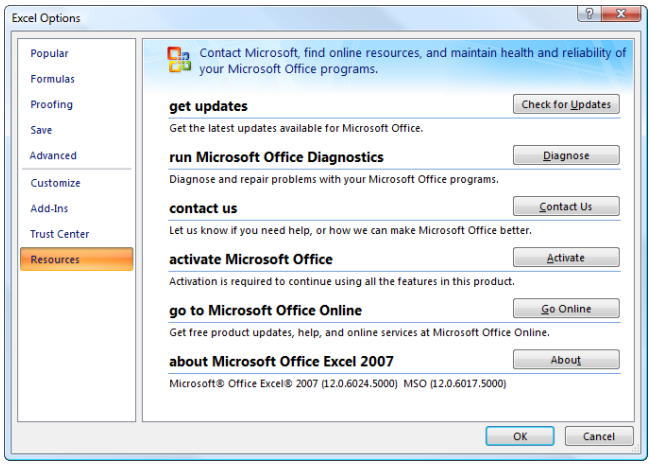

Excel Options
Popular
Formulas
Proofing
Save
Advanced
Customize
Add-Ins
Trust Center
Resources
Contact Microsoft, find online resources, and maintain health and reliability of your Microsoft Office programs.
get updates
Check for Updates
Get the latest updates available for Microsoft Office.
run Microsoft Office Diagnostics
Diagnose
Diagnose and repair problems with your Microsoft Office programs.
contact us
Contact Us
Let us know if you need help, or how we can make Microsoft Office better.
activate Microsoft Office
Activate
Activation is required to continue using all the features in this product.
go to Microsoft Office Online
Go Online
Get free product updates, help, and online services at Microsoft Office Online.
about Microsoft Office Excel 2007
About
Microsoft® Office Excel® 2007 (12.0.6024.5000) MSO (12.0.6017.5000)
OK
Cancel

Figure 16-8: The Resources tab of the Excel Options dialog box. Office Diagnostics replaces Detect and Repair from Excel 2003.

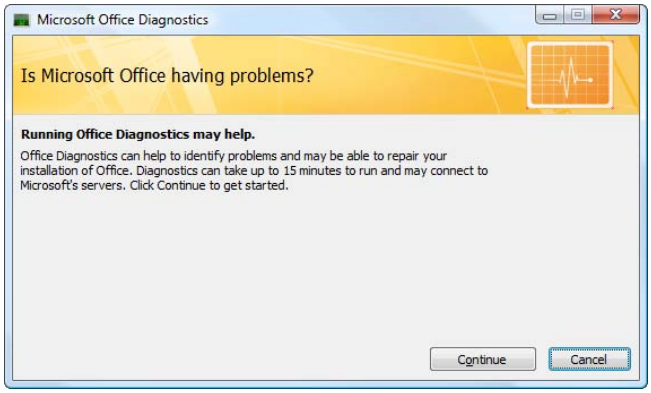

Microsoft Office Diagnostics
Is Microsoft Office having problems?
Running Office Diagnostics may help.
Office Diagnostics can help to identify problems and may be able to repair your installation of Office. Diagnostics can take up to 15 minutes to run and may connect to Microsoft's servers. Click Continue to get started.
Continue
Cancel

Figure 16-9: The first screen of the Microsoft Office Diagnostics tool.

Viewing Document Properties and Finding a File

View document properties

Document Properties are bits of information that describe and identify a document. This information includes the title, author name, subject, and keywords in the document. You can also add your own tags to document properties to help organize and identify the document later.

1. Click the **Office Button** and select **Prepare** → **Properties** from the menu.

   The Document Information Panel appears with the document's standard properties displayed. You can add your own keywords to the Keywords text box to make it easy to search for the document.

   Tip: Change a property by changing the text in its text box.

   You can also view more advanced properties.

2. Click the **Document Properties** list arrow in the upper-left corner of the Document Information Panel and select **Advanced Properties**.

   The Properties dialog box appears. Use these tabs to view and change more document properties.

3. Click the **OK** button in the Properties dialog box

   The Properties dialog box is closed.

4. Click the **Close** button in the Document Information Panel.

   The Document Information Panel is closed.

Find a file

It is just as easy to misplace and lose a file in your computer as it is to misplace your car keys—maybe easier! Luckily, Windows comes with a great search feature that can track down your lost files. Search can look for a file, even if you can't remember its exact name or location.

1. Click the **Start** button and type what you want to search for.

   Instant Search looks for file names, file contents, and file keywords that match the text you are searching for and displays the results in the Start menu.

2. Click the file that matches your search.

   The selected file appears.

Exercise

- **Exercise File:** Catalog16-1 xlsx
- **Exercise:** View the document properties and add "Frames and wheels" to the Subject property. Then search for "sales" in the Search box under the Start button and look at the list of results that match.

Click the Document Properties list arrow to view Advanced document properties.

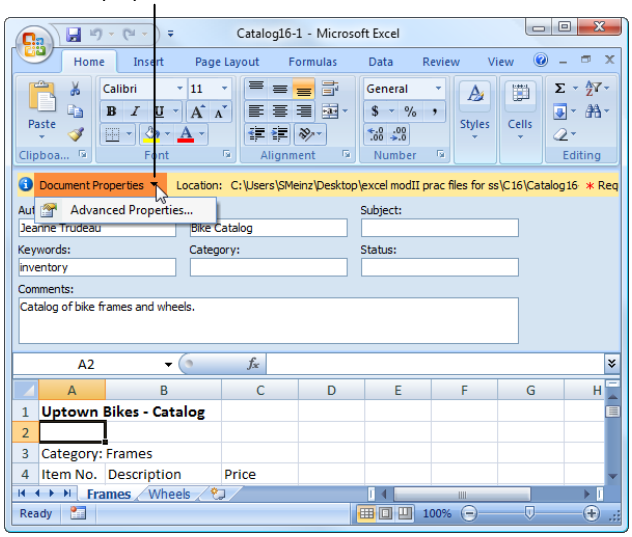
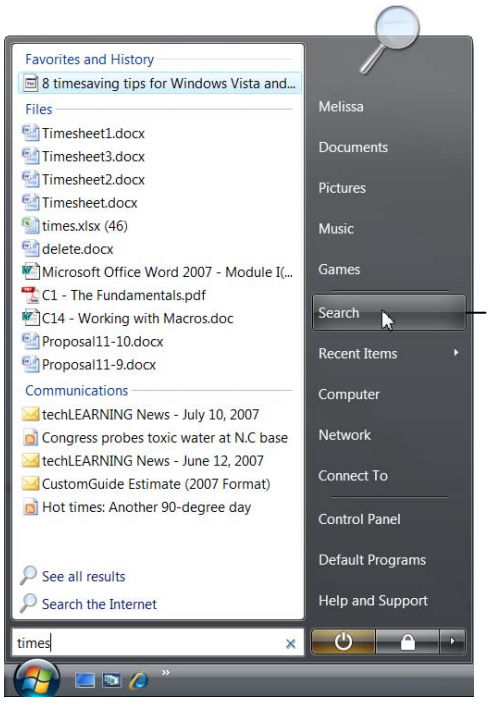


Figure 16-10: The Document Information Panel appears between the Ribbon and the document.



Use the Search folder for more advanced searches.

Figure 16-11: Search results from the Search box in the Start menu.

Saving a Document as PDF or XPS

New in Office 2007, you can save your files in Portable Document Format (PDF) or XML Paper Specification (XPS) format. Both formats ensure that when the file is viewed online or printed, it retains exactly the same format that you intended, and that data in the file cannot easily be changed.

Download add-in

In order to save a document in PDF or XPS format, you need to download and install an add-in from Microsoft Office Online.

1. Click the **Office** button and select **Save As** → **Find add-ins for other file formats** from the menu.

   The Excel Help window appears.

2. Find and click the **Microsoft Save as PDF or XPS Add-in for 2007 Microsoft Office programs** link.

   The Microsoft Download Center opens in your Web browser.

3. Follow the instructions to install the add-in.

Save to PDF or XPS

Once you have downloaded the PDF and XPS add-in, you're ready to start saving your files.

1. Click the **Office Button** and select **Save As** → **PDF or XPS** from the menu.

   The Publish as PDF or XPS dialog box appears.

2. Navigate to the location where you want to save the file.

3. Click the **Save as type** list arrow and select **PDF** or **XPS Document** from the list.

   You have several other options to choose from in this dialog box:

   - **Open file after publishing:** Select this option if you want to open the file immediately after saving it. This option is only available if you have a PDF or XPS reader installed on your computer.
   - **Standard (publishing online and printing):** Select this option if the document requires high print quality.

Exercise

- **Exercise File:** Catalog16-2 xlsx
- **Exercise:** Download and install the PDF add-in and save the workbook as a .pdf type document.

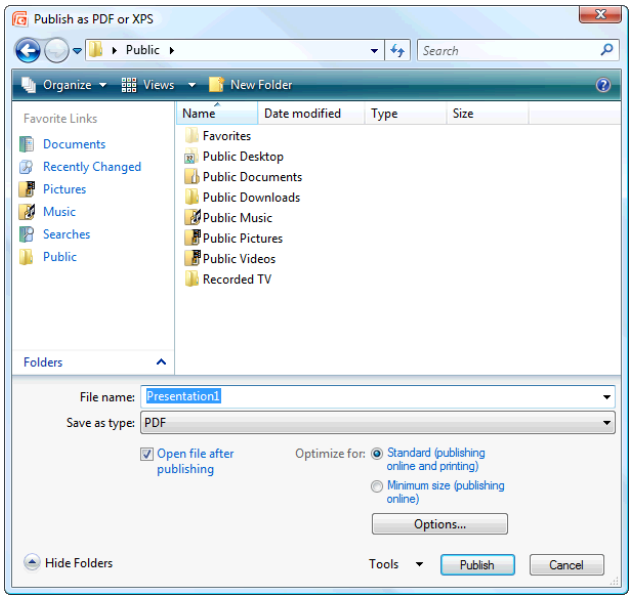


Figure 16-12: The Publish as PDF or XPS dialog box.

- **Minimum size (publishing online):** Select this option if the print quality is less important than the file size.
- **Options:** Click here to display the Options dialog box where you can specify even more options. Click **OK** to save your changes.

4. Make your specifications and click **Publish**.

Excel saves the document to the specified format.

Tips

✓ In order to view PDF and XPS files, you need to have a special reader/viewer installed. These can be downloaded for free online.

Adding a Digital Signature to a Workbook

You can help provide assurance as to the authenticity, integrity, and origin of a workbook by adding a digital signature to the document. Much like a handwritten signature on a check or other legal document, a digital signature ensures that the workbook was created by a particular person.

1. Click the **Office Button** and select **Prepare** → **Add a Digital Signature** from the menu.

   A confirmation dialog box appears.

   Tip: To purchase third-party software from the Office Marketplace, select **Signature Services from the Office Marketplace** in the dialog box that appears.

2. Click **OK**.

   The Get a Digital ID dialog box appears.

3. Select **Create your own digital ID** and click **OK**.

   The Create a Digital ID dialog box appears.

4. Enter your name, e-mail address, organization and location and click **Create**.

   The Sign dialog box appears. Here you need to specify the purpose of the digital signature.

5. Specify the purpose of the digital signature in the **Purpose for signing this document** field (for example, `Confirm authenticity`).

   Now you're ready to insert the digital signature.

6. Click **Sign**.

   The Signature Confirmation dialog box appears.

7. Click **OK**.

   The signature is confirmed and added to the workbook.

Tips

- ✓ To view digital signatures associated with a workbook, click the **Office Button** and select **Prepare** → **View Signatures** from the menu.

Exercise

- **Exercise File:** None required.
- **Exercise:** Understand how digital signatures work.

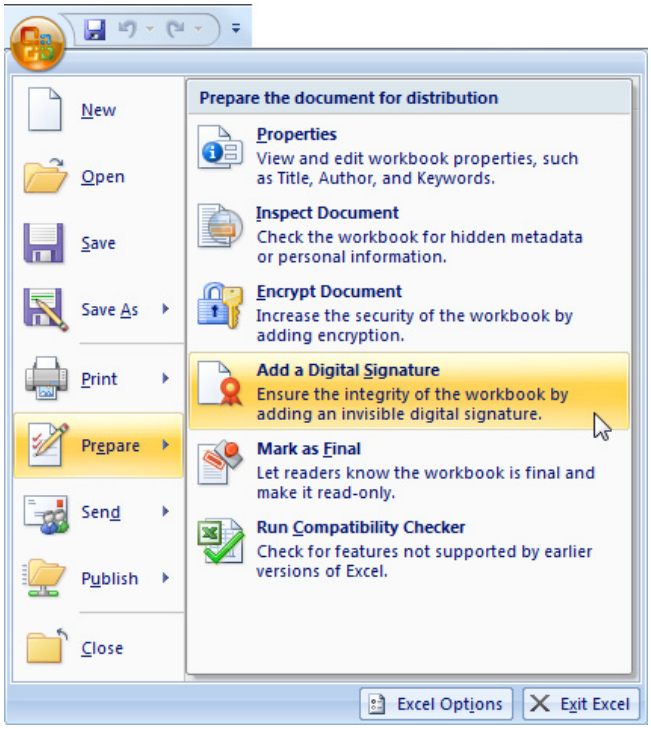

New
Open
Save
Save As
Print
Prepare
Send
Publish
Close
Prepare the document for distribution
Properties
View and edit workbook properties, such as Title, Author, and Keywords.
Inspect Document
Check the workbook for hidden metadata or personal information.
Encrypt Document
Increase the security of the workbook by adding encryption.
Add a Digital Signature
Ensure the integrity of the workbook by adding an invisible digital signature.
Mark as Final
Let readers know the workbook is final and make it read-only.
Run Compatibility Checker
Check for features not supported by earlier versions of Excel.
Excel Options
Exit Excel

Figure 16-13: Adding a digital signature.

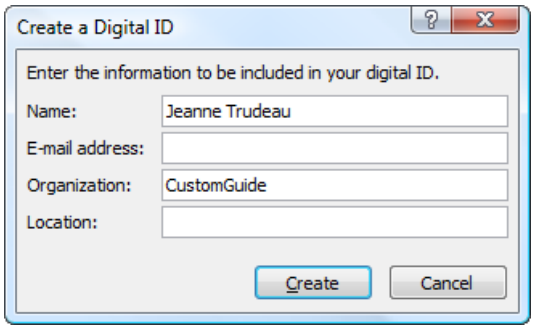


Figure 16-14: The Create a Digital ID dialog box.

Preparing Documents for Publishing and Distribution

Excel has several features that help you make sure workbooks look and work the way you want them to before you distribute them to others.

Excel 2007 comes with several options that help you prepare a workbook for distribution.

1. Click the **Office Button**, select **Prepare** and select the option you want to use.

Table 16-3: Prepare a Document for Distribution Options describes these options below.

Exercise

- **Exercise File:** Catalog16-3 xlsx
- **Exercise:** Remove document properties with the document inspector, and mark the document as final.

Table 16-3: Prepare a Document for Distribution Options

Properties	View and edit the workbook's properties, such as the name of the author, keywords that identify the workbook, and information such as the title or category assigned to the workbook.
Inspect Document	Check the workbook for hidden information, such as personal information; custom XML data; and other hidden or embedded information. Because this hidden information can reveal details about your organization or about the workbook itself that you might not want to share publicly, you might want to remove this hidden information before you share the workbook with other people.
Encrypt Document	Add a password to the workbook so that only individuals with the password can open it.
Add a Digital Signature	Add a digital signature to the workbook to be able to verify its integrity later on. You must be signed up for signature services from Microsoft to add a digital signature.
Mark as Final	This option marks the workbook as final so that other people receive it as a read-only file.
Run Compatibility Checker	Use this option if you are sharing the workbook with users of earlier versions of Excel.

Publishing a Workbook to a Document Workspace

If you have access to a SharePoint site online, you can publish your workbook to a document workspace. A document workspace allows you and your team to share files via the Internet so you can all work together on a workbook at the same time. By giving team members access to a single workbook, they can work directly on the workbook in the shared workspace, or work on their own copy that they can regularly synchronize with the shared workspace.

You will have to work with your network administrator to get permission to create a shared workspace on your organization's SharePoint site, but this lesson will show you how to get started.

Exercise

- **Exercise File:** Catalog16-3.xlsx
- **Exercise:** Understand how to upload a workbook to a shared workspace.

1. Open the workbook that you want to upload to the shared workspace.

2. Click the **Office Button** and select **Publish** → **Create Document Workspace** from the menu.

   The Document Management task pane appears.

   Tip: If you already have a document workspace you would like to publish the document to, select **Document Management Server** from the Publish menu.

3. Type the Web address of the SharePoint Web site in the "Location for new workspace" text box.

   If you want to publish the workbook to a site that you have used before, select the URL from the "Location for new workspace" list arrow.

4. Click the **Create** button in the Document Management task pane.

   Tip: If a message appears, telling you the site is restricted or non-trusted, click **OK**.

   Now just tell everyone where the workbook is located.

5. Click **Add New Members** and type the e-mail addresses or user names of the individuals to be added to the shared workspace.

   Depending on how your server and network is set up, the procedure for publishing to a document workspace may differ from the one described here.

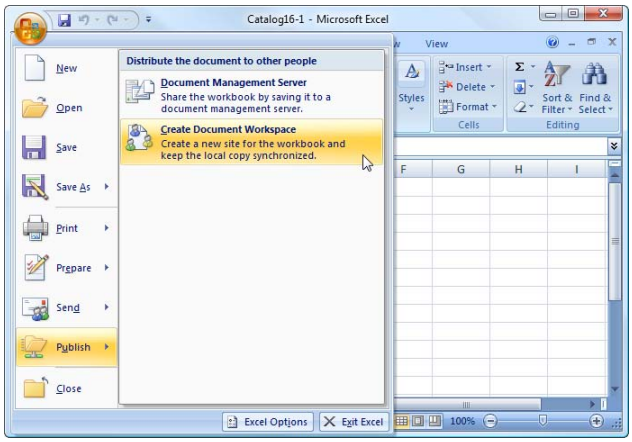


Figure 16-15: The Office Button menu.

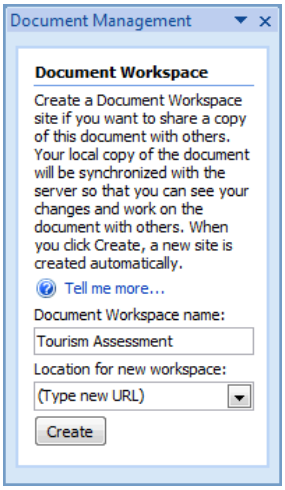

Document Management
Document Workspace
Create a Document Workspace site if you want to share a copy of this document with others. Your local copy of the document will be synchronized with the server so that you can see your changes and work on the document with others. When you click Create, a new site is created automatically.
Tell me more...
Document Workspace name:
Tourism Assessment
Location for new workspace:
(Type new URL)
Create

Figure 16-16: The Document Management task pane.

Creating a Custom AutoFill List

You're already familiar with Excel's AutoFill feature. It's the nifty function that automatically enters a series of values. If you find yourself typing the same list of words frequently, you can save yourself a lot of time by creating a custom AutoFill list. Once you have created a custom AutoFill list all you have to do is type the first entry of the list in a cell, and use AutoFill to have Excel complete the rest of the list for you.

Create a custom AutoFill list

1. Click the **Microsoft Office Button** and click **Excel Options**.

2. Click the **Popular** tab and select **Edit Custom Lists** in the "Top options for working with Excel" section.

   The Custom Lists dialog box appears.

3. Click **NEW LIST** in the Custom lists box.

4. Type the first entry you want to include in the AutoFill list and press **<Enter>**. Repeat for each entry of the list.

   Other Ways to Enter Custom List Entries: Select the cell range that contains the information you want to include in your custom AutoFill list. Then open the Custom Lists dialog box. Click **Import**.

5. Click **Add**.

   The custom list is added to the dialog box.

6. Click **OK**, **OK**.

Use a custom AutoFill list

Using a custom AutoFill list is just like completing any other series with AutoFill.

1. Click the cell where you want to begin the custom fill series.

2. Type an item from the series.

3. Click and drag the cell's fill handle to complete the series in the cells you select.

Exercise

- **Exercise File:** CustomizingExcel.xlsx
- **Exercise:** Use the data in A1:A10 to create a custom AutoFill list.
  Try using the AutoFill list in the worksheet.

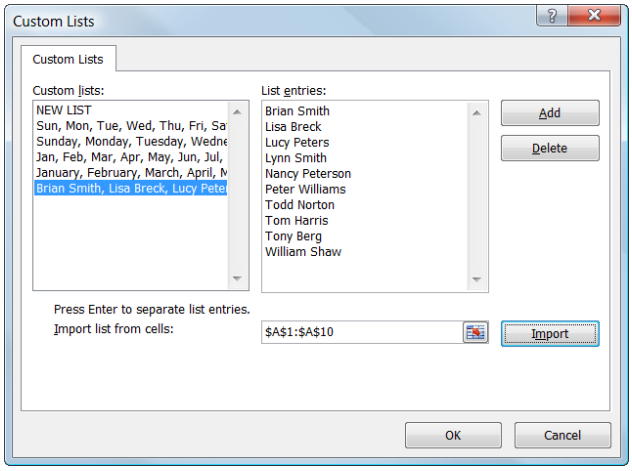


Figure 16-17: The Custom Lists dialog box.

Creating a Custom Number Format

You learned how to format values (numbers) in a previous lesson in this chapter. Excel comes with a huge number of predefined number formats you can use. With so many available number formats, it is unlikely that you will ever need to create your own custom number format, but if you do, here's a brief overview.

Exercise

- **Exercise File:** CustomizingExcel.xlsx
- **Exercise:** Select cell C1 and create this custom number format: ##-####

1. Click the **Home** tab on the Ribbon and click the **Dialog Box Launcher** in the Number group.

2. Click **Custom** in the Category box.

   This is where you can modify a copy of an existing format code to meet your specifications. A custom number format is created by specifying format codes that describe how you want to display a number, date, time, or text. Table 16-4: Format Codes for Numbers and Dates gives some examples of how to use these codes when creating custom number formats.

   Tip: The sample area of the number dialog box becomes very important when you're creating custom number formats. Watch the sample area carefully to see how the custom number format

3. In the Type list, select a number format that you want to customize.

   The number format appears in the Type box.

4. Make changes to the number format in the Type box using the format codes shown in Table 3 4: Format Codes for Numbers and Dates.

   Refer to (the table below) for more information on entering custom number formats.

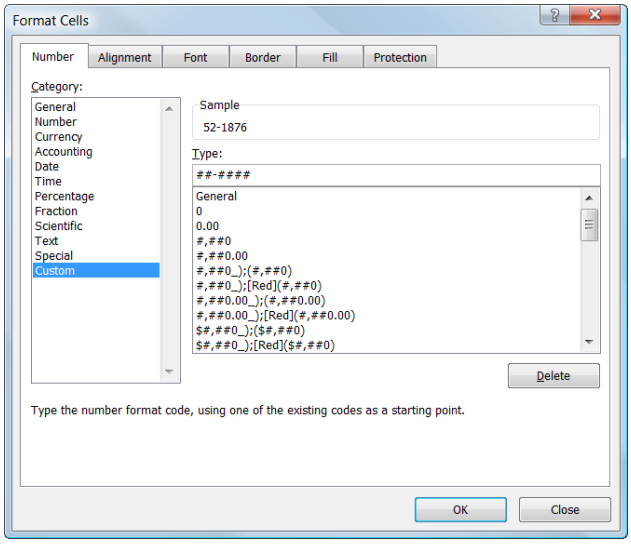


Figure 16-18: Creating a custom number format.

Table 16-4: Format Codes for Numbers and Dates

Numbers		Dates and Times	
To Display	**Use this Code**	**To Display**	**Use this Code**
1234.59 as 1234.6	####.#	1/1/99 as 1-1-99	m-d-yy
12499 as 12,499	#,###	1/1/99 as Jan 1, 99	mmm d, yy
12499 as 12,499.00	#,###.##	1/1/99 as January 1, 1999	mmmm, d, yyyy
1489 as $1,489.00	$#,###.##	1/1/99 as Fri 1/1/99	ddd m/d/yy
.5 as 50%	0%	1/1/99 as Friday, January 1	dddd, mmmm, d
.055 as 5.5%	0.0%	4:30 PM as 4:30 PM	h mm AM/PM
Hide value	;;	4:30 PM as 16:30	h mm

17

Appendix of Common Functions

Using Logical Functions (IF) 255
Using Financial Functions (PMT) 256
Using Database Functions (DSUM) 257
Using Lookup Functions (VLOOKUP) 258
Financial Functions 259
Date & Time Functions 260
Math & Trig Functions 262
Statistical Functions 264
Lookup & Reference Functions 265
Database Functions 266
Text Functions 267
Logical Functions 268

Excel has hundreds of functions—so many that you're not likely to use a majority of them. However, there are some functions that are more commonly used, and this chapter provides a quick overview of many of these important functions, organized by category.

The first few lessons let you practice some of the more common—yet still complex—functions in Excel.

For a complete list of Excel's functions and their descriptions—especially to learn about the more specialized categories of Information, Engineering, and Cube functions—check out the Excel Help files.

Using Logical Functions (IF)

This lesson introduces a very useful function, the IF function. The IF function is a conditional function or logical function because it will evaluate a condition you specify and return one value if the condition is true and another value if the condition is false. For example, you could use the IF function in an invoice to create a formula that would subtract a 5% discount from the invoice if the total was more than $500.00, otherwise it wouldn't subtract anything.

The IF function is one of the more difficult functions, but it's also very powerful.

1. Click the **Insert Function** button on the Formula bar.

The Insert Function dialog box appears.

2. Click the **Or select a category** list arrow and select **Logical**.

Functions that fall under this category are shown in the Select a function box.

3. Select **IF** in the Select a function box and click **OK**.

The Function Arguments dialog box appears.

Other Ways to Find a Function:
Type the function's name in the Search for a function box. Or, select the function from the Select a function box.

You're ready to start entering the IF formula. There are three parts in this formula:

- **Logical Test:** This is this first argument, and it evaluates a statement as true or false.
- **Value if True:** If the statement in the Logical Test is true, then this value is entered.
- **Value if False:** If the statement in the Logical Test is false, then this value is entered.

3. Enter the arguments for the IF function and click **OK**.

The function is run in the

Tip: Remember, you can also create cell references by clicking the cell or cell range you want to reference. Click the Collapse Dialog button to collapse the function palette and select the cell range if the Function Arguments dialog box is in the way.

Other Ways to Use the IF Function in a Formula:
Write the formula using the syntax =IF(logical_test,value_if_true,value_if_false).

Exercise

- **Exercise File:** Functions xlsx, IF worksheet
- **Exercise:** Enter these arguments for the IF function in cell B17:
  Logical test: B14>=500
  Value_if_true: B14*.15
  Value_if_false: B14*.1

  Copy the IF function from B17 to cells C17:H17.

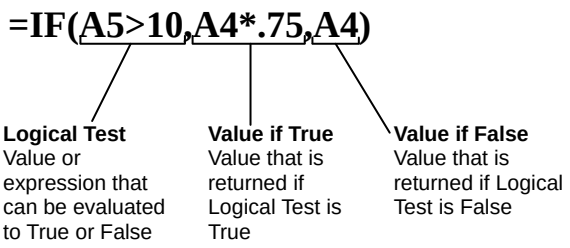

=IF(A5>10,A4*.75,A4)
Logical Test
Value or expression that can be evaluated to True or False
Value if True
Value that is returned if Logical Test is True
Value if False
Value that is returned if Logical Test is False

Figure 17-1: The syntax for the IF Function.

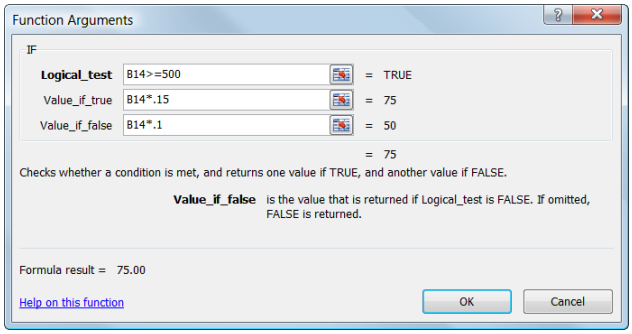

Function Arguments
IF
Logical_test B14>=500 = TRUE
Value_if_true B14*.15 = 75
Value_if_false B14*.1 = 50
= 75
Checks whether a condition is met, and returns one value if TRUE, and another value if FALSE.
Value_if_false is the value that is returned if Logical_test is FALSE. If omitted, FALSE is returned.
Formula result = 75.00
Help on this function
OK
Cancel

Figure 17-2: The Function Arguments dialog box.

Using Financial Functions (PMT)

The PMT function is a very valuable function if you work with real estate, investments, or are considering taking out a loan. The PMT function calculates the payment for a loan based on periodic payments and a constant interest rate. For example, say you want to take out a $10,000 car loan at 8% interest and will pay the loan off in four years. You can use the PMT function to calculate that the monthly payments for such a loan would be $244.13.You can also use the PMT function to determine payments to annuities or investments. For example, if you want to save $50,000 in 20 years by saving the same amount each month, you can use PMT to determine how much you must save.

1. Click the **Insert Function** button on the Formula bar.

The Insert Function dialog box appears.

2. Click the **Or select a category** list arrow and select **Financial**.

Functions that fall under this category are shown in the Select a function box.

3. Select **PMT** in the Select a function box and click **OK**.

The Function Arguments dialog box appears.

4. Enter the required arguments for the PMT function and click **OK**.

The results of the function are displayed in the selected cell.

Tip: Remember, you can also create cell references by clicking the cell or cell range you want to reference. Click the Collapse Dialog button to collapse the function palette and select the cell range if the Function Arguments dialog box is in the way.

Other Ways to Use the PMT Function in a Formula:
Write the formula using the syntax PMT(rate,nper,pv)

Exercise

- **Exercise File:** Functions.xlsx, PMT worksheet
- **Exercise:** In cell D4, create a PMT function that uses these arguments:
  Rate: C4/12
  Nper: B4*12
  Pv: A4

  The result is a negative number: Add a – (negative) symbol between the = and PMT in the Formula bar so the value is positive.

  Copy the PMT function to D5:D6.

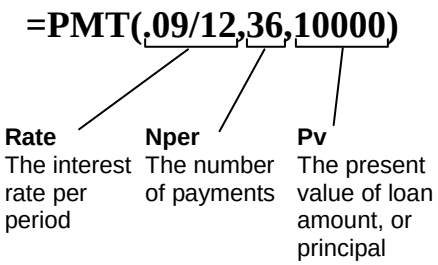


Figure 17-3: The syntax for the PMT Function.

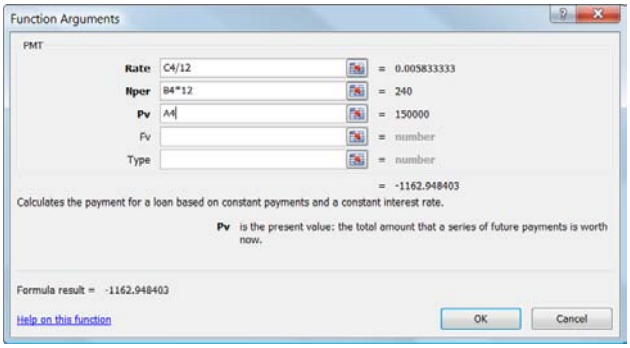

Function Arguments
PMT
Rate C4/12 = 0.005833333
Nper B4*12 = 240
Pv A4 = 150000
Fv = number
Type = number
= -1162.948403
Calculates the payment for a loan based on constant payments and a constant interest rate.
Pv is the present value: the total amount that a series of future payments is worth now.
Formula result = -1162.948403
Help on this function
OK
Cancel

Figure 17-4: The Function Arguments dialog box.

	A	B	C	D	E	F
1	**Mortgage Payment Table**					
2						
3	**Loan Amount**	**Loan Length (in years)**	**Interest Rate**	**Monthly Payment**	**Total Payments**	**Interest Paid**
4	$ 150,000	20	7.0%	$1,162.95	$279,107.62	$129,107.62
5	$ 150,000	20	7.5%	$1,208.39	$290,013.55	$140,013.55
6	$ 150,000	30	7.5%	$1,048.82	$377,575.83	$227,575.83

Figure 17-5: The results of the PMT function and additional information.

Using Database Functions (DSUM)

Excel's database functions perform calculations only for records that meet the criteria you specify. All the database functions use the same basic syntax: =Function(database, field, criteria). These arguments (parts) of a database function include:

- **Database:** Is the cell range that makes up the list or database.
- **Field:** Indicates which column is used in the function. You can refer to fields by their column labels as long as you enclose them with double quotation marks, such as "Name". You can also refer to fields as a number that represents the position of the column in the list: 1 for the first column in the list, 2 for the second, and so on. Make sure you refer to their position in the list, and not the column heading numbers!
- **Criteria:** Is a reference to the cell or cell range that specifies the criteria for the function.

This lesson explains how to use database functions by creating a formula with the simplest database function—the DSUM function.

1. Click the **Insert Function** button on the Formula bar.

The Insert Function dialog box appears.

2. Click the **Or select a category** list arrow and select **Database**.

Functions that fall under this category are shown in the Select a function box.

3. Select **DSUM** in the Select a function box and click **OK**.

The Function Arguments dialog box appears.

4. Enter the required arguments for the DSUM function and click **OK**.

Tip: It is important to understand how the field must be entered: either the name in double quotations, or by the number (for example, column A is 1, B is 2, and so on).

Other Ways to Use the DSUM Function in a Formula:
Write the formula using the syntax =DSUM(database, field, criteria).

Exercise

- **Exercise File:** Functions.xlsx, DSUM worksheet
- **Exercise:** Start by adding a label for the results of the DSUM function and criteria: Type **Purpose** in cell C25 and type **Business** in cell C26.

  Enter the DSUM function in C27 using these arguments:
  Database: A1:I23
  Field: "Annual Trips"
  Criteria: C25:C26

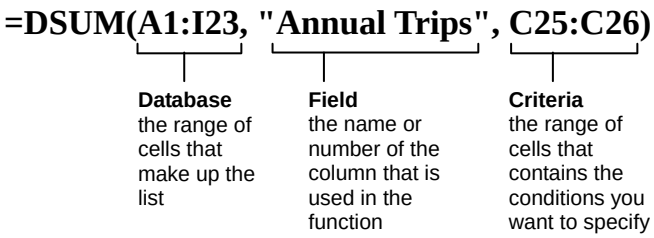

=DSUM(A1:I23, "Annual Trips", C25:C26)
Database
the range of cells that make up the list
Field
the name or number of the column that is used in the function
Criteria
the range of cells that contains the conditions you want to specify

Figure 17-6: The syntax for the DSUM function.

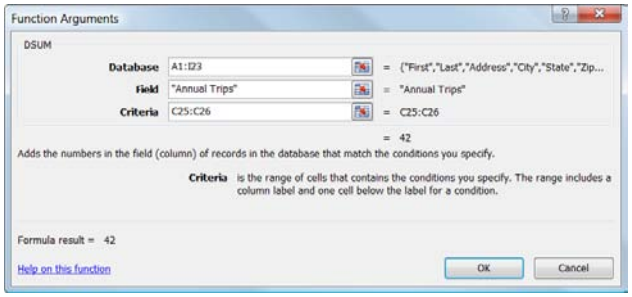
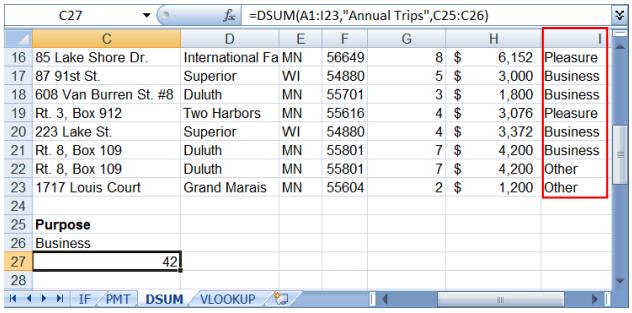

Function Arguments
DSUM
Database A1:I23 = {"First","Last","Address","City","State","Zip...
Field "Annual Trips" = "Annual Trips"
Criteria C25:C26 = C25:C26
= 42
Adds the numbers in the field (column) of records in the database that match the conditions you specify.
Criteria is the range of cells that contains the conditions you specify. The range includes a column label and one cell below the label for a condition.
Formula result = 42
Help on this function
OK
Cancel

Figure 17-7: The Function Arguments for the DSUM function.



	C	D	E	F	G	H	I
16	85 Lake Shore Dr.	International Fa	MN	56649	8	$ 6,152	Pleasure
17	87 91st St.	Superior	WI	54880	5	$ 3,000	Business
18	608 Van Burren St. #8	Duluth	MN	55701	3	$ 1,800	Business
19	Rt. 3, Box 912	Two Harbors	MN	55616	4	$ 3,076	Pleasure
20	223 Lake St.	Superior	WI	54880	4	$ 3,372	Business
21	Rt. 8, Box 109	Duluth	MN	55801	7	$ 4,200	Business
22	Rt. 8, Box 109	Duluth	MN	55801	7	$ 4,200	Other
23	1717 Louis Court	Grand Marais	MN	55604	2	$ 1,200	Other
24							
25	**Purpose**						
26	Business						
27	42						
28							

C27 displays the number of records in the Annual Trips column (column I) that match the criteria in C26.

Figure 17-8: An example of the DSUM function.

Using Lookup Functions (VLOOKUP)

The VLOOKUP function looks up information in a worksheet. The VLOOKUP searches vertically down the *left most* column of a cell range until it finds the value you specify. When it finds the specified value, it then looks across the row and returns the value in column you specify. The VLOOKUP function works a lot like looking up a number in a phonebook: first you look down the phonebook until you find the person's name, then you look across to retrieve the person's phone number.

Tips

✓ It's important to understand that VLOOKUP only looks down the column that is farthest left in the specified cell range. In then looks across the row.

1. Click the **Insert Function** button on the Formula bar.

The Insert Function dialog box appears.

2. Click the **Or select a category** list arrow and select **Lookup and Reference**.

Functions that fall under this category are shown in the Select a function box.

3. Select **VLOOKUP** in the Select a function box and click **OK**.

The Function Arguments dialog box appears.

3. Enter the required arguments for the VLOOKUP function.

Other Ways to Use the VLOOKUP Function in a Formula:
Write the formula using the syntax =VLOOKUP (lookup_value,table_array, col_index_num)

Tips

✓ The HLOOKUP function is similar to the VLOOKUP function, except it searches horizontal from left to right across the *top* row of a cell range until it finds the value you specify. When it finds the specified value it then looks down the column to find the specified value. Because of the way data is typically structured, VLOOKUP is much more powerful than HLOOKUP.

Exercise

- **Exercise File:** Functions.xlsx, VLOOKUP worksheet
- **Exercise:** Start by adding a label for the results of the VLOOKUP function and criteria: Type **Sales by Client** in cell E25 and type **21** in cell E26.

  Enter the VLOOKUP function in E27 using these arguments:
  Lookup value: E26
  Table_array: A1:J23
  Col_index_num: 9
  Range_lookoup: False

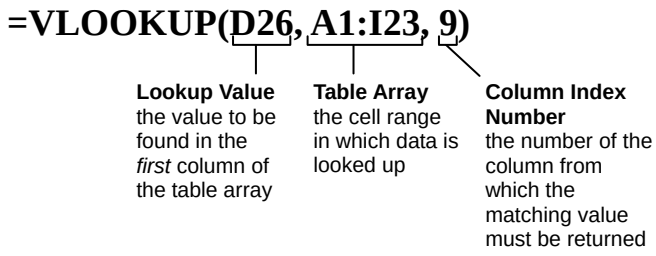

=VLOOKUP(D26, A1:I23, 9)
Lookup Value
the value to be found in the first column of the table array
Table Array
the cell range in which data is looked up
Column Index Number
the number of the column from which the matching value must be returned

Figure 17-9: The syntax for the VLOOKUP function.

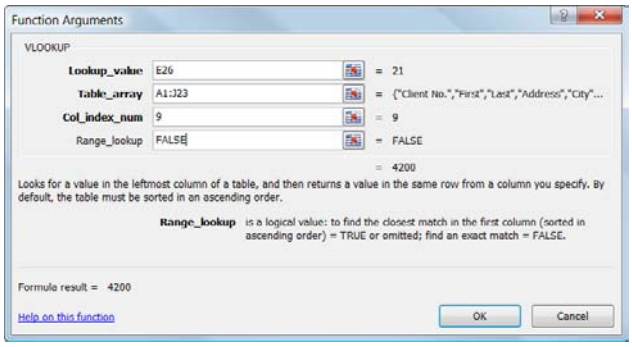

Function Arguments
VLOOKUP
Lookup_value E26 = 21
Table_array A1:J23 = {"Client No.","First","Last","Address","City"...
Col_index_num 9 = 9
Range_lookup FALSE = FALSE
= 4200
Looks for a value in the leftmost column of a table, and then returns a value in the same row from a column you specify. By default, the table must be sorted in an ascending order.
Range_lookup is a logical value: to find the closest match in the first column (sorted in ascending order) = TRUE or omitted; find an exact match = FALSE.
Formula result = 4200
Help on this function
OK
Cancel

Figure 17-10: The Function Arguments for the VLOOKUP function.

Financial Functions

Excel's financial functions are vital if you work with investments or real estate. Financial functions help you do things like determine loan payment amounts, calculate the future value of investments, and find rates of return.

Exercise

- **Exercise File:** None required.
- **Exercise:** Become familiar with Excel's Financial functions.

Table 17-1: Overview of Financial Functions

FV	=FV(rate, number of periods, payment, present value*, type*)	Calculates the future value of an investment based on periodic, constant payments and a constant interest rate. Example: You plan to deposit $2,000 a year for 35 into an IRA, and you expect a 10% average rate of return. =FV(10%,35,-2000) equals $542,048.74
IMPT	=IPMT(rate, period, number of periods, present value, future value*, type*)	Calculates the interest payment for over a specified period of time, with constant periodic payments and a constant interest rate. Example: The following formula calculates the interest due in the first month of a three-year $8000 loan at 10 percent annual interest: IPMT(0.1/12, 1, 36, 8000) equals -$66.67
IRR	=IRR(values, guess)	Calculates the internal rate of return of investment. The investments do not have to be equal, but they must occur at regular intervals. The internal rate of return is the interest rate received for an investment consisting of payments (negative values) and income (positive values) that occur at regular periods. Example: You want to start a business. It will cost $40,000 to start the business, and you expect to net the following income in the first three years: $10,000, $15,000, and $20,000. Enter the four values in the cells A1:A4 of the worksheet, making sure to enter the initial $40,000 investment as a negative value. IRR(A1:A4) equals 5%
NPV	=NPV(rate, value1, value2, ...)	Calculates the net present value of an investment by using a discount rate and a series of future payments (negative values) and income (positive values).
PMT	=PMT(rate, number of periods, present value, future value*, type*)	Calculates the payment for a loan based on constant payments and a constant interest rate. Example: The following formula calculates the monthly payment on a $20,000 loan with an annual interest rate of 9% that must be paid in 36-months. PMT(9%/12, 36, 20000) equals ($635.99)
PV	=PV(rate, number of periods, payment, future value*, type*)	Returns the present value of an investment. Example: An annuity that pays $600 every month for the next 20 years costs $50,000, and the money paid out will earn 7 %. You want to determine whether this would be a good investment. Using the PV function, you find that the present value of the annuity is: PV(0.07/12, 12*20, 600, , 0) equals ($77,389.50)
RATE	=RATE(total number of payments, payment, present value)	Determines the interest rate per period of an annuity. Example: You want to calculate the rate of a four-year (48 month) $8,000 loan with monthly payments of $200. Using the RATE function you find: RATE(48, -200, 8000) equals 0.77 percent This is the monthly rate, because the period is monthly. The annual rate is 0.77%*12, which equals 9.24 percent.

* Optional arguments.

Date & Time Functions

You can use dates and time in your formulas just like any other value. For example, if cell A1 contained the entry 5/1/99 you could use the formula =A1+100 to calculate the date 100 days later, which is 8/9/99.

One very important thing to know about working with date and time functions: while Excel can display dates and times using just about any format, it actually stores dates as chronological numbers called serial values. So when you think of dates as months, days, and, years, such as May 1, 1999, Excel thinks of dates in terms of serial numbers, such as 36281.

Since the date and time formulas often return serial number values, you should format any cells with date or time formulas with data and time formats that you can easily understand. You can also create custom number formats to display the results of date formulas. For example, the custom format dddd would display only the day, Monday, instead of the entire date, 8/9/99.

Exercise

- **Exercise File:** None required.
- **Exercise:** Become familiar with Excel's Date & Time functions.

Table 17-2: Overview of Date & Time Functions

DATE	=DATE(year, month, day)	Enters a date in the cell. Example: DATE(99,5,1) equals May 1, 1999.
TODAY	=TODAY( )	A special version of the DATE function. While the DATE function can return the value of any date, the TODAY function always returns the value of the current date.
TIME	=TIME(hour, minute, second)	Enters a time in the cell. Uses a 24-hour (military) time system. Example: TIME(14,30) equals 2:30 PM.
TODAY	=NOW( )	A special version of the TIME function. While the TIME function can return the value of any time, the NOW function always returns the value of the current time.
WEEKDAY	=WEEKDATE (serial_number, return_type)	Returns a day of the week for a specific date. The serial_number argument is a date value (or reference to one). Example: WEEKDAY("2/14/90") equals Wednesday.
YEAR	=YEAR (serial_number, return_type)	Returns a value of the year for a specific date. The serial_number argument is a date value (or reference to one). Example: YEAR("3/15/1998") equals 1998.
MONTH	=MONTH (serial number, return_type)	Returns a value of the month for a specific date. The serial number argument is a date value (or reference to one). Example: MONTH("3/15/1998") equals 3.
DAY	=DAY(serial_number, return_type)	Returns a value of the day for a specific date. The serial_number argument is a date value (or reference to one). Example: DAY("3/15/1998") equals 15.
HOUR	=HOUR (serial_number)	Returns hour value for a specific time. The serial number argument is a time value (or reference to one). Uses a 24-hour time format. Example: HOUR("12:15:45") equals 12.

Table 17-2: Overview of Date & Time Functions

MINUTE	=MINUTE (serial_number)	Returns the minute value for a specific time. The serial_number argument is a time value (or reference to one). Uses a 24-hour time format. Example: MINUTE("12:15:45”) equals 15.
SECOND	=SECOND (serial_number)	Returns a value of a second for a specific time. The serial_number argument is a time value (or reference to one). Uses a 24-hour time format. Example: SECOND("12:15:45”) equals 45.
HOUR	=HOUR(number, number_chosen)	Calculates the number of possible combinations from a given number of items. Example: You want to form a two-person team from five candidates, and you want to know how many possible teams can be formed. COMBIN(5, 2) equals 10 teams.
DAYS360	=DAYS360(start_date,end_date)	Returns the number of days between two dates based on a 360-day year (twelve 30-day months), which is used in some accounting calculations. Example: DAYS360("1/30/93", "2/1/93") equals 1.

Math & Trig Functions

You can find many of Excel's mathematical functions on a typical scientific calculator. If you still remember your algebra classes, many of these functions, such as SIN, COS, and LOG should be familiar to you.

🕮 Exercise

- **Exercise File:** None required.
- **Exercise:** Become familiar with Excel's Math & Trig functions.

Table 17-3: Overview of Math & Trig Functions

ABS	=ABS(number)	Determines the absolute value of a number. The absolute value of a number is the number without its sign.
ACOS	=ACOS(number)	Returns the arccosine of an angle. ACOS is the inverse of the COS function.
ASIN	=ASIN(number)	Returns the arcsine of an angle. ASIN is the inverse of the SIN function.
COMBIN	=COMBIN(number, number_chosen)	Calculates the number of possible combinations from a given number of items. Example: You want to form a two-person team from five candidates, and you want to know how many possible teams can be formed. COMBIN(5, 2) equals 10 teams.
COS	=COS(number)	Returns the cosine of an angle.
DEGREES	=DEGREES(angle)	Converts radians into degrees.
EVEN **ODD**	=EVEN(number)	Rounds a number up to the nearest even or odd integer.
EXP	=EXP(number)	Calculates the value of the constant e (approximately 2.71828182845904) raised to the power specified by its argument. Example: EXP(2) equals e2, or 7.389056
FACT	=FACT(number)	Calculates the factorial of a number. The factorial of a number is the product of all the positive integers from one up to the specified number. Example: FACT(5) equals 1*2*3*4*5 equals 120
LN	=LN(number)	Calculates the natural (base e) logarithm of a positive number.
LOG	=LOG(number, base)	Calculates the logarithm of a positive number using a specified base.
LOG10	=LOG(number)	Calculates the base 10 logarithm of a number.
MOD	=MOD(number, divisor)	Returns the remainder after number is divided by divisor. Example: MOD(3, 2) equals 1, the remainder of dividing 3 by 2.
PI	=PI( )	Returns the value of the constant pi (π), accurate to 14 decimal places.
PRODUCT	=PRODUCT(number1, number2…)	Multiplies all the numbers in a range of cells
RADIANS	=DEGREES(angle)	Converts degrees to radians.
RAND	=RAND()	Generates a random number between 0 and 1.
RANDBETWEEN	=RANDBETWEEN (bottom, top)	Generates a random number between the bottom and top arguments.

Table 17-3: Overview of Math & Trig Functions

ROUND **ROUNDDOWN** **ROUNDUP**	=ROUND(number, num_digits)	Rounds a number to a specified number of digits. The ROUNDDOWN and ROUNDUP function take the same form as the ROUND function, and as their name implies, always round either up or down.
SIGN	=SIGN(number)	Determines the sign of a number. Results in 1 if the number is positive, zero (0) if the number is 0, and -1 if the number is negative.
SIN	=SIN(number)	Returns the sine of an angle.
SQRT	=SQRT(number)	Returns a positive square root of a number.
SUM	=SUM(number1, number2…)	Adds all the numbers in a range of cells.
SUMIF	=SUMIF(range,criteria, sum_range)	Adds the cells only if they meet the specified criteria. Example: You want to total the cell range B1:B5 only if the value in cellA1 is greater than 500. SUMIF(A1,">500",B1:B5)
TAN	=TAN(number)	Returns the tangent of an angle.

Statistical Functions

Excel offers a large number of functions to help you analyze statistical data.

Exercise

- **Exercise File:** None required.
- **Exercise:** Become familiar with Excel's Statistical functions.

Table 17-4: Overview of Statistical Functions

AVERAGE	=AVERAGE(number1, number2…)	Calculates the average, or arithmetic mean, of the numbers in the range or arguments.
COUNT	=COUNT(number1, number2…)	Counts the number of cells that contain numbers, including dates and formulas. Ignores all blank cells and cells that contain text or errors.
COUNTA	=COUNTA(number1, number2…)	Counts the number of all nonblank cells, regardless of what they contain, such as text.
COUNTIF	=COUNTIF(range,criteria, sum_range)	Counts the cells only if they meet the specified criteria. Similar to SUMIF.
MAX	=MAX(number1, number2…)	Returns the largest value in a range.
MEDIAN	=MEDIAN(number1, number2…)	Calculates the median of the numbers in the range or arguments. The median is the number in the middle of a set of numbers—half the numbers have values that are greater than the median, and half have values that are less.
MIN	=MIN(number1, number2…)	Returns the smallest value in a range.
MODE	=MODE(number1, number2…)	Determines which value occurs most frequently in a set of numbers.
STDEV	=STDEV(number1, number2…)	Estimates standard deviation based on a sample. The standard deviation is a measure of how widely values are dispersed from the average value.
STDEVP	=STDEVP(number1, number2…)	Estimates standard deviation based on an entire population.
VAR	=VAR(number1, number2…)	Estimates variance based on a sample.
VARP	=VARP(number1, number2…)	Estimates variance based on an entire population.

Lookup & Reference Functions

You can use Excel's Lookup & Reference functions to locate values in rows or columns of data.

Exercise

- **Exercise File:** None required.
- **Exercise:** Become familiar with Excel's Lookup & Reference functions.

Table 17-5: Overview of Lookup & Reference Functions

COLUMNS	=COLUMNS(array)	Returns the number of columns in a range.
HLOOKUP	=HLOOKUP(lookup_value, table_array, row_index_num, Range_lookup*)	This "horizontal lookup" function looks for a value in the top row of a table or range and returns a value in the same column from the row you specify. Use when comparison values are in the top row across a table of data and you want to look down a certain number of rows.
LOOKUP	=LOOKUP(lookup_value,lookup_vector,result_vector); =LOOKUP(lookup_value,array)	Returns a value from a one-row or one-column range or from an array.
ROWS	=ROWS(array)	Returns the number of rows in a range.
TRANSPOSE	=TRANSPOSE(array)	Returns a vertical range of cells as a horizontal range, or vice versa. Changes the orientation of the range.
VLOOKUP	=VLOOKUP(lookup_value,table_array,col_index_num,range_lookup*)	This "vertical lookup" function looks for a value in the first column of a table or range and returns a value in the same row from the column you specify. Use when comparison values are in a column to the left of the data you want to find.

*Optional arguments

Database Functions

Database functions return results based on filtered criteria. All the database functions use the same basic syntax =Function(database, field, criteria). The arguments include:

- **Database:** The cell range that makes up the list or database.
- **Field:** Indicates which column is used in the function. You can refer to fields by their column label enclosed with double quotation marks, such as "Name" or as a number that represents the position of the column in the list: 1 for the first column, 2 for the second, and so on—not the column heading numbers!
- **Criteria:** Is a reference to the cell or cell range that specifies the criteria for the function. For example, you might only want to total records from a certain region.

Exercise

- **Exercise File:** None required.
- **Exercise:** Become familiar with Excel's Database functions.

Table 17-6: Overview of Database Functions

DAVERAGE	=DAVERAGE(database, field, criteria)	Find the average of values in a column in a list or database that match the criteria you specify.
DCOUNT	=DCOUNT(database, field, criteria)	Counts the number of cells that contain numbers from a list or database that match the criteria you specify.
DGET	=DGET(database, field, criteria)	Extracts a single record from a database that matches the criteria you specify.
DMAX	=DMAX(database, field, criteria)	Returns the largest value from a database that matches the criteria you specify.
DMIN	=DMIN(database, field, criteria)	Returns the smallest value from a database that matches the criteria you specify.
DSTDEV	=DSTDEVP(database, field, criteria)	Estimates standard deviation based on a sample. The standard deviation is a measure of how widely values are dispersed from the average value.
DSUM	=DSUM(database, field, criteria)	Adds the values in a column in a list or database that match the criteria you specify.
DVAR	=DVAR(database, field, criteria)	Estimates variance based on a sample from selected list or database entries.

Text Functions

Excel offers a category of functions aimed at working with text. These functions allow you to remove, combine, and replace different pieces of text in a worksheet.

Exercise

- **Exercise File:** None required.
- **Exercise:** Become familiar with Excel's Text functions.

Table 17-7: Overview of Text Functions

CONCATENATE	CONCATENATE (text1,text2,...)	Combines multiple strings of text into one string.
EXACT	EXACT(text1,text2)	Compares two strings of text and returns TRUE if they are exactly the same, FALSE if they aren't. The function is case-sensitive but doesn't pay attention to formatting differences. Use EXACT to test whether text being entered into a worksheet matches another text string.
LEFT	LEFT(text,num_chars*)	Returns the first character or characters in a text string, depending on the number of characters you specify.
LEN	LEN(text)	Returns the number of characters in a string of text. Spaces count as characters.
LOWER	LOWER(text)	Converts uppercase letters in a text string to lowercase.
MID	MID(text,start_num,num_chars)	Returns a specified number of characters from a text string, starting at the position you specify.
PROPER	PROPER(text)	Capitalizes the first letter in a text string and any other letters in text that follow any character other than a letter. Converts all other letters to lowercase letters.
REPLACE	REPLACE(old_text,start_num,num_chars,new_text)	Replaces the number of characters you specify in a text string with a different text string.
RIGHT	RIGHT(text,num_chars*)	Returns the last character or characters in a text string, depending on the number of characters you specify.
SUBSTITUTE	SUBSTITUTE(text,old_text,new_text,instance_num*)	Substitutes new specified text for old specified text in a text string.
TRIM	TRIM(text)	Removes all spaces from text except for single spaces between words. Use to fix irregular spacing.
UPPER	UPPER(text)	Converts lowercase letters in a text string to uppercase.

*Optional arguments.

Logical Functions

Excel has a number of logical functions to choose from. These functions allow you to evaluate logical arguments and conditions. The most famous logical function is probably the IF function.

Exercise

- **Exercise File:** None required.
- **Exercise:** Become familiar with Excel's Logical functions.

Table 17-8: Overview of Logical Functions

AND	AND(logical1,logical2*, ...)	Returns TRUE if all its arguments are TRUE, or FALSE if one or more argument is FALSE. The arguments need to evaluate to logical values like TRUE or FALSE.
IF	IF(logical_test,value_if_true,value_if_false*)	Use for conditional tests on values and formulas. Returns one value if a condition you specify is TRUE and another value if it is FALSE.
OR	OR(logical1,logical2*,...)	Returns TRUE if any of its arguments is TRUE, or FALSE if all arguments are FALSE.

*Optional arguments.

Microsoft Office Excel 2007 Review

Quiz Questions

1. Excel automatically opens with Windows. (True or False?)

2. Which of the following is NOT a new feature in Excel 2007?
   A. SmartArt
   B. Microsoft Online help
   C. New user interface
   D. Live Preview

3. The Ribbon can be hidden so that only tab names appear. (True or False?)

4. The Office Button contains basic file commands. (True or False?)

5. What is the Quick Access Toolbar?
   A. There are no toolbars in Excel 2007.
   B. What appears when you select text.
   C. A customizable toolbar of common commands that appears above or below the Ribbon.
   D. An extension of the Windows taskbar.

6. Which of the following is NOT a common keystroke shortcut in Excel?
   A. <Ctrl> + <Alt> + <Delete>
   B. <Ctrl> + <S>
   C. <Ctrl> + <O>
   D. <Ctrl> + <Home>

7. Contextual menus are only available when text is selected. (True or False?)

8. What is the Mini Toolbar?
   A. Another name for the Quick Access Toolbar.
   B. A toolbar of common formatting commands that appears whenever text or data is selected within a cell.
   C. The name of the toolbar in the Help window.
   D. There are no toolbars in Excel 2007.

9. What key can you press to get help in Excel?
   A. <Esc>
   B. <Ctrl> + <H>
   C. <F1>
   D. <F11>

10. Which of the following are ways to exit Excel 2007? (Select all that apply.)
    A. Click the Office Button and click Exit Excel.
    B. Click the Office Button and click Close Excel.
    C. Click the Close button on the title bar.
    D. Click the Close button on the Quick Access Toolbar.

11. A blank workbook appears automatically when you start Excel. (True or False?)

12. To open a workbook, click the Office Button and select _____.
    A. Open
    B. Find
    C. Look in
    D. Search

13. Press _____ to move the cell pointer one cell to the left.
    A. <Enter>
    B. <Shift> + <Tab>
    C. The up arrow key
    D. <Tab>

14. Labels consist of any type of data used in calculations (True or False?)

15. Excel automatically _____ values in cells.
    A. left-aligns
    B. right-aligns
    C. centers
    D. merges and centers

16. You can select all the cells in a worksheet at once. (True or False?)

17. All formulas start with a(n) _____.
    A. =
    B. /
    C. #
    D. >

18. Which one of the following features can help you quickly total a column of numbers?
    A. AutoTotal
    B. QuickSum
    C. AutoSum
    D. QuickTotal

19. Which of the following formulas is NOT correctly written?
    A. 5+6
    B. =A2-B3
    C. =A4/A6
    D. =SUM(A1:A6)

20. You can use AutoFill to copy a formula to adjacent cells. (True or False?)

21. Absolute cell references never include dollar signs. (True or False?)

22. You can undo multiple actions in Excel. (True or False?)

23. When you save a workbook with a different name, the old workbook is deleted. (True or False?)

24. The feature that allows you to see how your printed worksheet will look is called _____.
    A. Print View
    B. Print Layout
    C. Print Sampling
    D. Print Preview

25. Which of the following is NOT a way to print a worksheet?
    A. Press <Ctrl> + <P>.
    B. Click the Quick Print button on the Quick Access Toolbar.
    C. Press <Ctrl> + <T>.
    D. Click the Office Button and select Print.

26. You can close a workbook which one of the following ways?
    A. Press <Ctrl> + <C>.
    B. Click and drag the workbook window to the Recycle Bin.
    C. Click the workbook's Close button.
    D. Press <Delete>.

27. You can replace cell contents by typing over the current contents. (True or False?)

28. To copy cells using the mouse, press and hold the _____ key while clicking and dragging the selection.
    A. <Alt>
    B. <Ctrl>
    C. <Shift>
    D. <F4>

29. The Office Clipboard is available in other Office programs besides Excel. (True or False?)

30. With the Paste Special command, you can choose to paste only _____.
    A. values
    B. formulas
    C. cell comments
    D. All of these are correct.

31. Which button should you click to leave misspelled text alone and move to the next questionable word?
    A. Ignore Once
    B. Ignore All
    C. Add to Dictionary
    D. Change

32. When you insert a row, the existing rows are shifted in which direction?
    A. Left
    B. Upward
    C. Downward
    D. Right

33. Pressing the Delete key deletes the selected cell and its contents. (True or False?)

34. To access the find and replace commands, click the Find & Select button in the _____ group on the Home tab.
    A. Editing
    B. Cells
    C. Number
    D. Clipboard

35. You can delete a cell comment, but you can't edit one. (True or False?)

36. When you track changes in Excel, you must also share the workbook. (True or False?)

37. Which of the following is NOT a type of font formatting?
    A. Bold
    B. Italic
    C. Underline
    D. Comma Style

38. Which of the following is NOT a type of number formatting?
    A. Number
    B. Accounting
    C. Dollar
    D. Percentage

39. The _____ feature automatically resizes columns or rows to best fit cell contents.
    A. AutoFit
    B. AutoSize
    C. AutoAdjust
    D. FitRight

40. You can align cell contents horizontally but not vertically within a cell. (True or False?)

41. The Border list arrow is located in the _____ group on the Home tab.
    A. Alignment
    B. Clipboard
    C. Font
    D. Number

42. Click the Format Painter button once to apply it once or twice to apply it multiple times. (True or False?)

43. Excel contains preset formatting styles that you can quickly apply to cells. (True or False?)

44. Document themes consist of:
    A. Theme colors
    B. Theme fonts
    C. Theme effects
    D. All of these

45. _____ allows you to highlight cells that meet specific criteria.
    A. Conditional formatting
    B. Font formatting
    C. Filtering
    D. Find and replace

46. Which of the following is not a conditional format that can be applied to cells?
    A. Data Bars
    B. Characters
    C. Color Scales
    D. Icon Sets

47. You can preview how a new conditional formatting rule looks before you apply it. (True or False?)

48. You cannot edit a conditional formatting rule after you've created it. (True or False?)

49. Which of the following types of items can NOT be found using Excel's Find feature?
    A. Formulas
    B. Comments
    C. Conditional Formatting
    D. Styles

50. A line chart
    A. displays trends over time.
    B. compares values across categories.
    C. displays the contribution of each value to a total.
    D. compares pairs of values.

51. To create a chart, click the
    A. Home tab.
    B. Insert tab.
    C. Data tab.
    D. Formulas tab.

52. A faint outline appears as you drag the chart to resize it. (True or False?)

53. When you change the chart type of only one of multiple data series in a chart, you create a _____ chart.
    A. mixed-use
    B. dual
    C. combination
    D. consolidated

54. Built-in chart layouts and styles are found on the _____ tab.
    A. Home
    B. Format
    C. Layout
    D. Design

55. Which of the following is NOT a type of label in the Labels group?
    A. Chart Title
    B. Data Bar
    C. Legend
    D. Data Labels

56. You can add or remove axis tick marks using the Format Axis dialog box. (True or False?)

57. Which of the following is NOT a button found in the Background group on the Layout tab?
    A. Background Area
    B. Plot Area
    C. Chart Wall
    D. Chart Floor

58. Which of the following is NOT a button found in the Analysis group?
    A. Error Bars
    B. Error Lines
    C. Trendline
    D. Lines

59. You can right-click a chart element and use the Mini Toolbar to quickly perform basic text formatting. (True or False?)

60. To change a chart's source data, click the _____ button in the Data group.
    A. Change Source
    B. Edit Chart
    C. Update Chart Data
    D. Select Data Source

61. If you decide you no longer need a chart template that you've saved, you can delete it. (True or False?)

62. Which of the following is NOT a view option in Excel?
    A. Normal view
    B. Edit view
    C. Page Layout view
    D. Page Break Preview view

63. You can use the Zoom slider to change the magnification level of a worksheet. (True or False?)

64. When you create a new workbook window, you create a copy of the workbook file. (True or False?)

65. Splitting and freezing a workbook window are exactly the same thing. (True or False?)

66. To select a worksheet, click the View tab on the Ribbon, click the Sheet button in the Worksheet Selection group, and select the sheet you want to make active. (True or False?)

67. You can add additional worksheets to a workbook. (True or False?)

68. You can move a worksheet within a workbook simply by dragging the sheet's tab to a new location. (True or False?)

69. Click the _____ button in the Window group to switch between multiple open workbooks.
    A. Change Windows
    B. Choose Workbook
    C. Switch Windows
    D. View Workbook

70. When you hide a row, column, or worksheet, the hidden data is deleted. (True or False?)

71. You can protect a workbook from
    A. being modified.
    B. having its structure changed.
    C. being opened.
    D. All of these things.

72. You can unlock cell ranges so that they can still be edited once the worksheet is protected. (True or False?)

73. Which of the following is NOT an option in Excel for publishing a workbook to a server?
    A. Internet Fax
    B. Excel Services
    C. Document Management Server
    D. Create Document Workspace

74. Once you have created a template you can use it to create new workbooks. (True or False?)

75. You can work with headers and footers easiest in Page Layout View. (True or False?)

76. In Page Break Preview view, you can move a page break by clicking and dragging it to a new location. (True or False?)

77. Which of the following is NOT a preset margin size setting available in Excel?
    A. Large
    B. Normal
    C. Wide
    D. Narrow

78. The default paper size in Excel is:
    A. Legal
    B. Letter
    C. Executive
    D. A4

79. The Sheet Options group on the Page Layout tab has commands that allow you to view or print which of the following:
    A. The Formula Bar
    B. Formulas
    C. Page numbers
    D. Gridlines

80. In the Print dialog box, you CANNOT select how many copies you want to print. (True or False?)

81. To change the order of evaluation, enclose the part of the formula to be calculated first in parentheses. (True or False?)

82. Which of the following is NOT a category of functions in Excel?
    A. Scientific
    B. Financial
    C. Logical
    D. Math & Trig

83. By default, Excel recalculates the formulas in a workbook whenever you change a value that affects another value. (True or False?)

84. You can define a name for multiple non-adjacent cells. (True or False?)

85. Which of the following is NOT a button found in the Defined Names group?
    A. Name Manager
    B. Evaluate Formula
    C. Define Name
    D. Use in Formula

86. Click the _____ button to display arrows that show what cells affect the currently selected cell.
    A. Show Formulas
    B. Watch Window
    C. Define Name
    D. Trace Precedents

87. The Error Checking dialog box does not include which one of the following buttons?
    A. Help on this error
    B. Show Calculation Steps
    C. Edit in Formula Bar
    D. Show Formulas

88. Before you sort data, make sure it's organized into...
    A. a chart.
    B. alphabetical order.
    C. a pivot table.
    D. columns and rows.

89. You can sort Excel data by any of the following, except by...
    A. font color.

B. cell icon.
C. number formatting.
D. cell color.

90. To sort by multiple columns, use the _____.
A. Sort dialog box
B. Column Specifier button
C. Sort Columns window
D. drag and drop feature

91. You can create your own custom list for sorting or use a predefined custom list. (True or False?)

92. Which one of the following is a way to turn on the filtering buttons?
A. Click the Insert tab and click the Filter button in the Filter group.
B. Click the Filter tab and click the Filter button in the Filter group.
C. Click the Home tab on the Ribbon, click the Sort & Filter button in the Editing group, and click Filter.
D. Type the formula =Filter(Data) in the first cell of the column you want to filter.

93. You can use wildcards when entering values in the Custom AutoFilter dialog box. (True or False?)

94. With an Advanced Filter, you can do all of the following, except...
A. Extract and copy filtered results to another range on the worksheet.
B. Use wildcards in the filter criteria.
C. Filter using criteria located outside of the data range.
D. You can do all of these things.

95. You can create a blank table or a table that uses an existing data range. (True or False?)

96. Which of the following is NOT a way to resize a table?
A. Click the Resize Table button in the Properties group.
B. Use the Resize Table Wizard.
C. Enter data in a cell below or to the right of the table.
D. Click and drag the table's sizing handle.

97. By default, when you add a total row to a table, the last column is summed. (True or False?)

98. Which of the following is not a feature for working with table data?
A. Removing duplicate rows
B. Using calculated columns
C. Filtering and sorting
D. All of these are features for working with table data.

99. You can summarize and analyze table data using a _____.
A. PivotTable
B. PivotSheet
C. PivotGrid
D. DataSheet

100. In Excel 2007, the Data Form has been excluded from the Ribbon by default. (True or False?)

101. Once you apply a table style to a table, you can't change it to a different one. (True or False?)

102. Which of the following is NOT a formatting option in the Table Style Options group?
   A. Header Row
   B. Checkered Rows
   C. Banded Columns
   D. First Column

103. You can create a new table style using the _____ dialog box.
   A. New Table Style
   B. Custom Table Style
   C. New Table Quick Style
   D. Create Table Style

104. When you convert a table to a range, the table formatting remains applied to the cells. (True or False?)

105. You can create a PivotTable in its own new worksheet or in one that already exists in your workbook. (True or False?)

106. Specify the data you want to use in the PivotTable in the _____ task pane.
   A. Select Fields
   B. Specify Fields
   C. PivotTable Field List
   D. PivotTable Layout

107. Which of the following is NOT a calculation available in the Value Field Settings dialog box?
   A. Count
   B. Average
   C. StdDev
   D. These are all available

108. You can filter a PivotTable by dragging a field into the _____ box in the PivotTable Field List.
   A. AutoFilter
   B. Report Filter
   C. Pivot Filter
   D. Data Filter

109. Which of the following is NOT a button found in the Layout group on the Design tab?
   A. Header Row
   B. Grand Totals
   C. Report Layout
   D. Blank Rows

110. You can group any type of PivotTable item except for dates. (True or False?)

111. When you make changes to your PivotTable's source data, the PivotTable refreshes automatically to include the edits. (True or False?)

112. Which of the following is NOT an option in the PivotTable Style Options group?
   A. Banded Columns
   B. Banded Rows
   C. Bold Headers
   D. Row Headers

113. When you modify a PivotTable, the PivotChart is updated along with it. (True or False?)

114. To make sure you don't lose the original values for the changing cells, you should use the original cell values in the first scenario you create. (True or False?)

115. The result cells you specify in the Scenario Summary dialog box are _____.
   A. the total row of your scenarios
   B. the data labels used in your scenarios
   C. the cells that you change in the scenarios
   D. the cells that are affected by the changing cells in the scenarios

116. You can create either a one- or a two-input data table. (True or False?)

117. Use Goal Seek when _____.
   A. you don't know the result of a formula, but you know the formula input values
   B. you know the desired result of a formula, but not the input value the formula needs to arrive at the result
   C. you want to quickly create scenarios
   D. you know the result of one formula, but not the result of another formula that references that formula

118. Solver is an optional Excel Add-In feature. (True or False?)

119. Which of the following statements is NOT true?
   A. You can provide users with information and feedback using Data Validation.
   B. To use Data Validation, click the Data Validation button in the Data Tools group on the Data tab.
   C. You must protect the worksheet to use the data validation feature.
   D. Data validation lets you restrict which type of information is entered in a cell.

120. Which of the following is NOT a delimiter that Excel can use to split cell data?
   A. Space
   B. Semicolon
   C. Comma
   D. All of these are common delimiters

121. The Remove Duplicates button is found in the _____ group on the Data tab on the Ribbon.
   A. Data Tools
   B. Sort & Filter
   C. Outline
   D. Analysis

122. You can group rows and columns manually by selecting them. (True or False?)

123. You should sort data before you group and summarize its information using the Subtotals command. (True or False?)

124. You can consolidate by _____ when the data in all the worksheets is arranged in exactly the same order and location.
   A. position
   B. category
   C. absolute reference
   D. column

125. The cells you reference don't need to be in the same position on each sheet, or even have the same labels, to be consolidated using formulas. (True or False?)

126. A hyperlink is text or an image that points to a file, a specific location in a file, or a Web page on your computer, on a network, or on the Internet. (True or False?)

127. To create a Web page from a workbook you need to have a basic understanding of HTML. (True or False?)

128. To import data into Excel, use the buttons in the _____ group on the Data tab on the Ribbon.
   A. Connect to External Data
   B. Get External Data
   C. Import Data
   D. Import Files

129. When you click a yellow table selection arrow on a Web page, it turns into a green checkmarked box. (True or False?)

130. Which of the following is NOT a button in the Connections group on the Data tab on the Ribbon.
   A. Hyperlink
   B. Refresh All
   C. Properties
   D. Connections

131. Which of the following is NOT a place where you can choose to store a macro?
   A. This Workbook
   B. New Workbook
   C. Universal Macro Workbook
   D. Personal Macro Workbook

132. To play a macro in the Macro dialog box, click the _____ button
   A. Run
   B. Play
   C. Macro
   D. Go

133. You can select a symbol of your choice to represent the macro on the Quick Access Toolbar. (True or False?)

134. Excel macros are written in the _____ programming language.
   A. ABC
   B. Visual Basic
   C. Basic Macro
   D. Visual Excel

135. You can change your macro security settings in the _____ window.
   A. Macro Center
   B. Code Center
   C. Trust Center
   D. VBA Control

136. Which of the following statements declares a variable?
   A. REM HireDate as Date
   B. Dim HireDate as Date
   C. InputBox(HireDate) = Date
   D. Sub HireDate() = Date

137. Which of the following statements would prompt a user for information?
   A. REM DOB as Date
   B. Sub HireDate(
   C. DIM HireDate(
   D. InputBox(

138. On which tab on the Ribbon is the Clip Art button located?
   A. View
   B. Insert
   C. Data
   D. Page Layout

139. Whenever a picture or graphics file has been inserted, the _____ contextual tab appears on the Ribbon by default.
   A. Insert
   B. Graphics
   C. Format
   D. Picture

140. The cropping tool is NOT useful in which of the following situations:
   A. When you want to change the color of a picture or graphic.
   B. When you only want to include a portion of a graphic—for example, a person's face instead of their entire body.
   C. When you want to trim the edges of a picture.
   D. When you want to remove a portion of a picture or graphic.

141. Changing the visual style of a picture or graphic alters the picture or graphics file. (True or False?)

142. What is an adjustment handle used for?
   A. To adjust the size of the shape.
   B. To move the shape to a new location.
   C. To adjust the color of the shape.
   D. To adjust a shape's most prominent feature, such as the point of an arrow or the spikes on a star.

143. A *visual style* is a set of different formatting commands that can be applied to a shape in one single step. (True or False?)

144. What happens if you hold down the <Shift> key as you click and drag an object's sizing handles?
   A. Excel copies the object.

B. Excel changes the color of the object.
C. Excel moves the object.
D. Excel maintains the objects proportions as it resizes the object.

145. Holding down the <Ctrl> key as you click and drag an object copies the object. (True or False?)

146. Which of the following is NOT a type of special effect in Excel 2007?
A. Reflection
B. Glow
C. Morph
D. Bevel

147. Which of the following is the correct way to select more than one object on a worksheet?
A. Click the Format contextual tab on the Ribbon and click the Select Object button in the Arrange group.
B. Hold down the <Ctrl> key as you click each object.
C. Hold down the <Shift> key as you click each object.
D. You can only select one object at a time in Excel 2007.

148. You cannot make changes to an individual object when it is grouped. (True or False?)

149. The Align command spaces out selected objects equally. (True or False?)

150. To rotate an object with greater precision, use the:
A. Ribbon
B. Size and Position dialog box
C. rotation handle
D. contextual menu

151. Which of the following is NOT a layering command in Excel 2007?
A. Send to Middle
B. Send to Back
C. Bring to Front
D. Bring Forward

152. The SmartArt feature lets you design your own clip art. (True or False?)

153. You can add text to a SmartArt graphic using the graphic itself or the _____ pane.
A. Task
B. Protection
C. Graphics
D. Text

154. In order to create an effective SmartArt graphic, you need to know how to work with its elements. (True or False?)

155. All SmartArt formatting changes are final. (True or False?)

156. You cannot modify WordArt once it has been inserted. (True or False?)

157. When you embed a PowerPoint presentation, the Ribbon changes to display tabs with PowerPoint commands. (True or False?)

158. How would you insert a © symbol in a worksheet?
   A. Click the Insert tab on the Ribbon and click the Symbol button in the Symbols group.
   B. Press <Ctrl> + <C>.
   C. Click the Copyright button on the Standard toolbar.
   D. Excel cannot display the © symbol.

159. Why would you use the Quick Access Toolbar?
   A. To have a backup in case the main toolbars fail.
   B. To have a toolbar that's compatible across several programs.
   C. To provide quick access to the commands you use most often.
   D. To keep your other toolbars private.

160. You can restore the default commands to the Quick Access Toolbar by clicking the Reset button. (True or False?)

161. AutoCorrect changes:
   A. Spelling errors
   B. Grammar errors
   C. Capitalization errors
   D. All of these.

162. AutoCorrect entries created in Excel will not appear in any other programs. (True or False?)

163. Which of the following is NOT a tab in the Excel Options dialog box?
   A. Proofing, which changes how Excel corrects your text.
   B. Formulas, which changes how formulas perform.
   C. Create, which changes how new workbooks are made.
   D. Trust Center, which changes your privacy options.

164. You can see the status of any recovered document simply by pointing at it for a moment in the Available Files pane. (True or False?)

165. You can specify how often a document is automatically saved. (True or False?)

166. To repair Excel, click the Office Button and select:
   A. Excel Options, then click the Resources tab and click Diagnose.
   B. Diagnostics, then click Run.
   C. Save, then Save after Diagnosis.
   D. Properties, then choose the All Programs tab and select Office Tools.

167. Document Properties like subject and category can only changed by an administrator. (True or False?)

168. If you don't know the name of a file, you can find it by searching for a file keyword. (True or False?)

169. You can save a document in XPS or PDF mode immeditately when Office is installed on your computer. (True or False?)

170. Once a document has been saved as a PDF or XPS file, you can view it even without a viewer or reader for those files.(True or False?)

171. What is a digital signature?
   A. A copy of a handwritten signature inserted in a document as a graphic.
   B. Your avatar symbol for Office.
   C. The signature used in Outlook.
   D. A digital encryption that ensures the document was created by a particular person.

172. 'Mark as Final' is one of the options for preparing a document for distribution. (True or False?)

173. When a workbook is saved onto a shared workspace:
   A. Coworkers can work on the workbook and synchronize the results.
   B. Coworkers can work on the workbook but they are not able to share the results.
   C. Coworkers can view the workbook but are not able to make changes.
   D. Coworkers can create a SharePoint server site that allows administrators to use Excel.

174. What are the three arguments or parts of an IF formula?
   A. IF, THEN, ELSE
   B. The conditional statement, the value if the test is false, and the value if the test if true.
   C. The logical test, the value if the test is true, and the value if the test if false.
   D. The conditional statement, the expression, and the value.

175. Which is NOT a required part of a PMT function?
   A. The interest rate.
   B. The amount of the loan, or principal.
   C. The number of payments.
   D. If the interest rate is Fixed or Variable.

176. The DSUM function calculates the totals of specific records based on your criteria. (True or False?)

177. Which of the following functions looks up values vertically down a column and then horizontally across a row?
   A. HLOOKUP
   B. DSUM
   C. DLOOKUP
   D. VLOOKUP

Quiz Answers

1. False. You must start Excel to begin using it.

2. B. Microsoft Online help is not a new feature in Excel 2007.

3. True. Double-click a tab to hide the Ribbon, then click any tab to view commands once again.

4. True. The Office Button contains basic file commands, similar to the File menu of previous versions.

5. C. The Quick Access Toolbar is a customizable toolbar of common commands that appears above or below the Ribbon.

6. A. <Ctrl> + <Alt> + <Delete> is a Windows command, not an Excel command.

7. False. Contextual menus are available whenever you right-click something in the Excel window.

8. B. The Mini Toolbar is a toolbar of common formatting commands that appears whenever text or data is selected within a cell.

9. C. Press <F1> to access help in Excel.

10. A and C. Click the Office Button and click Exit Excel or click the Close button on the title bar.

11. True. A blank workbook appears when you start Excel.

12. A. Select Open and then navigate to the saved file you want to open.

13. B. Pressing <Shift> + <Tab> moves the cell pointer one cell to the left.

14. False. Labels are any type of text or information NOT used in calculations.

15. B. Excel right-aligns values.

16. True. You can select all cells at once by pressing Ctrl + A.

17. A. All formulas start with an equal sign (=).

18. C. You can quickly sum a column of numbers using the AutoSum button.

19. A. This formula is incorrect because it doesn't begin with an equal sign.

20. True. You can use AutoFill to copy formulas to adjacent cells.

21. False. Absolute cell references always contain dollar signs.

22. True. You can undo multiple actions in Excel.

23. False. The original workbook remains intact, with its original name.

24. D. The Print Preview feature allows you to preview how your printed worksheet will look.

25. C. Pressing <Ctrl> + <T> is not a print command.

26. C. Click the Close button or press <Ctrl> + <W> to close a workbook.

27. True. Simply click a cell and type to replace its contents.

28. B. Press and hold the <Ctrl> key to copy cells using the mouse.

29. True. The Office Clipboard can be used in all Office programs.

30. D. You can use the Paste Special command to paste any of these elements.

31. A. Click the Ignore Once button to leave text alone and move to the next questionable word.

32. C. The existing rows are shifted downward when you insert a row.

33. False. Pressing the Delete key only deletes the cell's contents.

34. A. Editing

35. False. You can edit or delete a cell comment.

36. True. When you track changes in Excel, you must also share the workbook.

37. D. Comma Style is not a type of font formatting.

38. C. Dollar is not a type of number formatting.

39. A. AutoFit resizes columns or rows to best fit cell contents.

40. False. You can align cell contents vertically and horizontally within a cell.

41. C. The Border list arrow is located in the Font group.

42. True. Click the Format Painter button once to apply it once or twice to apply it multiple times.

43. True. Excel contains preset formatting styles that are all ready for you to apply to cells.

44. D. Document themes consist of theme colors, fonts, and effects.

45. A. Conditional formatting allows you to highlight cells that meet specific criteria.

46. B. Characters is not a conditional formatting option in Excel.

47. True. Click Preview in the New Formatting Rule dialog box to see how new conditional formatting will look before you apply it.

48. False. You can edit a conditional formatting rule.

49. D. Styles cannot be found using the Find feature.

50. A. A line chart displays trends over time.

51. B. To create a chart, click the Insert tab, then select a chart type and chart in the Charts group.

52. True. A faint chart outline does appear as you resize a chart.

53. C. When you change the chart type of only one of multiple data series in a chart, you create a combination chart.

54. D. Built-in chart layouts and styles are found on the Design tab.

55. B. Data Bar is not a type of label in the Labels group.

56. True. Adding or removing tick marks is one of the options in the Format Axis dialog box.

57. A. Background Area is not a button found in the Background group.

58. B. Error Lines is not a button found in the Analysis group.

59. True. You can right-click a chart element and use the Mini Toolbar to quickly perform basic text formatting.

60. D. To change a chart's source data, click the Select Data Source button in the Data group.

61. True. If you decide you no longer need a chart template that you've saved, you can delete it.

62. B. Edit view is not an Excel view option.

63. True. The Zoom slider on the status bar lets you zoom in and out of a worksheet.

64. False. Creating a new workbook window is like opening the workbook in a different view: if a workbook is open in multiple windows, changes made in any of the windows are applied to the same file.

65. False. They are similar, but splitting allows you to scroll through all window sections independently. Also, you can move split lines but not frozen sections.

66. False. To select a worksheet, click that worksheet's tab at the bottom of the workbook window.

67. True. You can add and delete worksheets.

68. True. You can move a worksheet within a workbook simply by dragging the sheet's tab to the new location. Hold down the Ctrl key if you want to copy it.

69. C. Click the Switch Windows button in the Window group to switch between multiple open workbooks.

70. False. Hiding data doesn't delete it, it just hides it from view until it is unhidden.

71. D. You can protect a workbook from all of these things.

72. True. You can unlock cell ranges so that they can still be edited once the worksheet is protected.

73. A. Internet Fax is a way to send, not publish a workbook from Excel.

74. True. Once you have created a template you can use it to create new workbooks.

75. True. Page Layout View makes it easy to work with headers and footers.

76. True. In Page Break Preview view, you can move a page break by clicking and dragging it to a new location.

77. A. Large is not a margin size option in Excel.

78. B. Letter is the default paper size in Excel.

79. D. You can view or print gridlines and headings using the commands in the Sheet Options group.

80. False. In the Print dialog box, you CAN select how many copies you want to print.

81. True. To change the order of evaluation, enclose the part of the formula to be calculated first in parentheses.

82. A. Scientific is not a category of functions in Excel.

83. True. By default, Excel recalculates the formulas in a workbook whenever you change a value that affects another value.

84. True. You can define a name for multiple non-adjacent cells.

85. B. The Evaluate Formula button is not found in the Defined Names group.

86. D. Click the Trace Precedents button to display arrows that show what cells affect the currently selected cell.

87. D. The Error Checking dialog box does not have a Show Formulas button.

88. D. Before you sort data, make sure it's organized into columns and rows.

89. C. You can sort data by cell icon, cell or font color, but not by number formatting.

90. A. Use the Sort dialog box to sort data by multiple columns.

91. True. You can either create your own custom list or use a predefined custom list.

92. C. To display the filtering buttons, click the Home tab on the Ribbon, click the Sort & Filter button in the Editing group, and click Filter.

93. True. You can use wildcards when entering values in the Custom AutoFilter dialog box.

94. D. You can do all these things with an Advanced Filter.

95. True. You can create a blank table or a table that uses an existing data range.

96. B. There isn't a Resize Table Wizard in Excel.

97. True. When you add a total row to a table, the last column is summed by default.

98. D. All of these are features for working with table data.

99. A.You can summarize and analyze table data using a PivotTable.

100. True. In Excel 2007, the Data Form has been excluded from the Ribbon by default.

101. False. You can always change table styles.

102. B. Checkered Rows is not an option in the Table Style Options group.

103. C. You can create a new table style using the New Table Quick Style dialog box.

104. True. When you convert a table to a range, the table formatting remains applied to the cells.

105. True. You can create a PivotTable in either a new or existing worksheet

106. C. Specify the data you want to use in the PivotTable in the PivotTable Field List task pane.

107. D. All are available.

108. B. You can filter a PivotTable by dragging a field into the Report Filter box in the PivotTable Field List.

109. A. Header Row is not a button found in the Layout group on the Design tab.

110. False. Dates are commonly grouped in PivotTables.

111. False. You must manually refresh the PivotTable to include changes made to your source data.

112. C. Bold Headers is not an option in the PivotTable Style Options group.

113. True. When you modify a PivotTable, the PivotChart is updated along with it.

114. True. To make sure you don't lose the original values for the changing cells, you should use the original cell values in the first scenario you create.

115. D. The result cells you specify in the Scenario Summary dialog box are the cells that are affected by the changing cells in the scenarios.

116. True. You can create either a one- or a two-input data table

117. B. Use Goal Seek when you know the desired result of a formula, but not the input value the formula needs to arrive at the result.

118. True. Solver is an optional Excel Add-In feature.

119. C. You don't need to protect the worksheet to use the data validation feature.

120. D. All of these are common delimiters that Excel can use to split cell data.

121. A. The Remove Duplicates button is found in the Data Tools group on the Data tab on the Ribbon.

122. True. You can group rows and columns manually by selecting them.

123. True. Always sort data before using the Subtotals command.

124. A. You can consolidate by position when the data in all the worksheets is arranged in exactly the same order and location.

125. True. The cells you reference don't need to be in the same position on each sheet, or even have the same labels, to be consolidated using formulas.

126. True. A hyperlink is text or an image that points to a file, a specific location in a file, or a Web page on your computer, on a network, or on the Internet.

127. False. You don't need to know anything about HTML to create a Web page from Excel.

128. B. To import data into Excel, use the buttons in the Get External Data group on the Data tab on the Ribbon.

129. True. When you click a yellow table selection arrow on a Web page, it turns into a green checkmarked box.

130. A. Hyperlink is not a button in the Connections group.

131. C. The Universal Macro Workbook is not a place where you can store a macro.

132. A. Click the Run button in the Macro dialog box to play a macro.

133. True. You can select a symbol of your choice to represent the macro on the Quick Access Toolbar.

134. B. Excel macros are written in the Visual Basic programming language.

135. C. You can change your macro security settings in the Trust Center window.

136. B. Dim HireDate as Date would declare the variable 'HireDate' as a date.

137. D. The statement InputBox(

138. B. The Clip Art button is located in the Illustrations group on the Insert tab.

139. C. Whenever a picture or graphic has been inserted into a worksheet, the Format contextual tab appears on the Ribbon under Picture Tools.

140. A. The cropping tool is not useful when it comes to changing the color of a picture or graphic.

141. False. Changing the visual style of a picture or graphic does not alter the picture or graphic itself, just how it appears on the worksheet.

142. D. An adjustment handle is used to adjust a shape’s most prominent feature, such as the point of an arrow or the spikes on a star.

143. True. A visual style is a set of different formatting commands that can be applied to a shape in one single step.

144. D. Holding down the <Shift> key as you click and drag an object’s sizing handles maintains the object’s proportions.

145. True. Holding down the <Ctrl> key as you click and drag an object copies the object.

146. C. Morph is not a type of special effect in Excel 2007.

147. C. To select multiple objects in Excel, press and hold down the <Shift> key as you click each object that you want to select.

148. True. In order to make changes to an object that is part of a group, you need to ungroup the object first.

149. False. The *Distribute* command spaces out selected objects equally.

150. B. To rotate an object with greater precision, use the Size and Position dialog box.

151. A. Send to Middle is not a layering command in Excel 2007.

152. False. The SmartArt feature lets you create and customize designer-quality diagrams.

153. D. You can add text to a SmartArt graphic using the graphic itself or the Text pane.

154. True. In order to create an effective SmartArt graphic, you should know how to add and remove shapes, replace shapes with different ones, etc.

155. False. You can easily restore the default formatting of a SmartArt graphic using the Reset Graphic command.

156. False. You *can* modify WordArt once it has been inserted.

157. True. When you embed a PowerPoint presentation, the Ribbon changes to display tabs with PowerPoint commands.

158. A. To insert a symbol or special character, click the Insert tab on the Ribbon and click the Symbol button in the Symbols group.

159. C. The purpose of the Quick Access Toolbar is to provide buttons for the commands you use most often.

160. True. You can restore the default commands to the Quick Access Toolbar by clicking the Reset button.

161. D. AutoCorrect changes spelling errors, grammar errors, and capitalization errors.

162. False. AutoCorrect entries created in Excel will appear in any other Office programs.

163. C. There is no Create tab in the Excel Options dialog box.

164. True. You can see the status of any recovered document simply by pointing at it in the Available Files pane.

165. True. You can specify how often a document is automatically saved.

166. A. To repair Excel, click the Office Button and select Excel Options, then click the Resources tab and click Diagnose.

167. False. You can change a property by changing the text in its text box.

168. True. If you don't know the name of a file, you can find it by searching for a file keyword.

169. False. You must download an add-in to enable this ability in Microsoft Office 2007.

170. False. You must download a special viewer or reader to view documents saved as PDF or XPS files.

171. D. A digital encryption that ensures the document was created by a particular person.

172. True. Mark as Final is one of the options for preparing a document for distribution.

173. A. When a workbook is saved onto a shared workspace, coworkers can work on the workbook and synchronize the results.

174. C. The three parts of an IF formula are the logical test, the value if the test is true, and the value if the test is false.

175. D. A fixed or variable interest rate option is not part of the PMT function.

176. True. The DSUM calculates the totals of specific records based on your criteria.

177. The VLOOKUP functions can look up values vertically down a column and then horizontally across a row.